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Queen's Quarterly.

VOL. XXIII

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No. 1

CAESAR AND THE BRITISH GENERAL STAFF.

THE student of military tactics will find Caesar's account of the battle of Pharsalus extremely interesting and instructive. Details regarding most of the battles of antiquity are so meagre that it is seldom possible to follow the operations by which one army gained the superiority over another. But in the case of the battle of Pharsalus Caesar in his *Civil War* (iii, 84-98) gives a full description of the disposition of his forces, his manner of deploying, and the tactics adopted by himself and Pompey both during and after their encounter. There is much in these chapters that reads like the instructions laid down for infantry training by the General Staff of the British War Office. And if the system of tactics advocated by our General Staff is sound, then the strategy of Caesar in this famous battle was sound, and was the primary cause of his victory over a force numerically more than twice as strong as his own.

To appreciate fully the superiority of Caesar's tactics it will be necessary to study in detail the ground on which the battle was fought, the dispositions of both armies, the general plan of both commanders before battle was joined, the modifications of their plans during the action itself, the final result, and lastly the use which the victor made of his victory. A clear idea of the ground on which the battle was fought will be obtained from the accompanying diagram. Pompey's legionary soldiers are drawn up on the line P to Q. His right wing is protected by a river with steep banks and his left by the spurs of a mountain. In front of his line of battle the ground is level and suitable for the action of cavalry in which he has an enormous superiority in numbers. The cavalry together with the slingers and archers is posted on the extreme left where Pompey himself has taken up his position. As regards his plan of battle he has one idea and only one—to hurl his

whole cavalry, along with the slingers and archers, on Caesar's right wing with the view of outflanking him. By this one device alone he expects to win the day as we learn from the following extract taken from chapter 86.

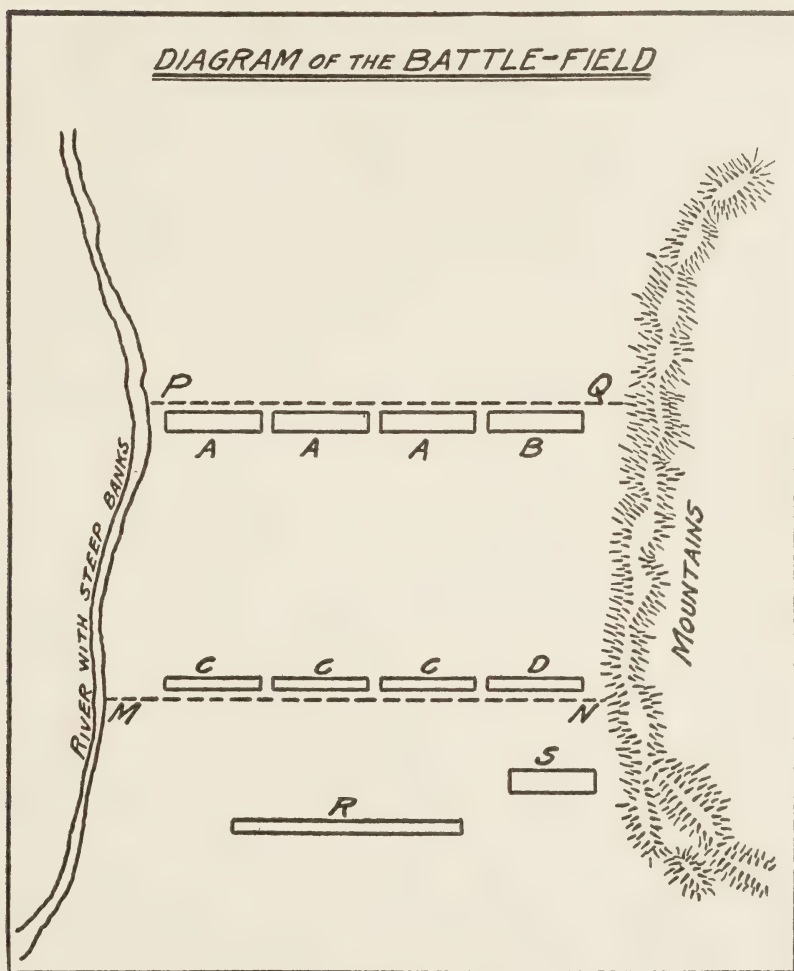
* "Pompeius, too, as was found out afterwards, had determined, with the general encouragement of his men, to fight a pitched battle. For he had gone so far as to assert in the council of war on previous days that Caesar's army would be repulsed before the lines met. When several had expressed surprise at this: 'I know,' said he, 'that I am promising a thing almost incredible, but listen to the nature of my plan that you may go forth to battle with a stouter heart. I have induced my cavalry—and they have assured me that they will do it—as soon as the two armies have drawn nearer, to attack Caesar's right wing on his open flank and by surrounding his line from the rear to drive his army in confused rout before a weapon is cast at the foe by us. So we shall finish the war without imperilling the legions and almost without a wound. And this is not difficult, considering that we are so strong in cavalry.'"

In his plan of battle Pompey has committed two of the worst blunders of which a general is capable. In the first place he has deployed too soon, for all his men are in position before Caesar's approach to the field of battle, and one glance at his formation is enough to show just what his intentions are, and in the second place his whole force is in the firing line from the start. In other words, he has kept back no reserves and therefore, once he has launched his attack, he can do nothing to influence the fight.

In regard to Pompey's first error, that of deploying too soon, this is what our General Staff has to say in *Field Service Regulations, Part I, Section 102*:

"Before deploying it will usually be desirable for each column to close up and assume a formation of assembly. . . . It is important that *the deployment should be concealed from the enemy* by the action of the advanced troops."

* All the translations in this article are taken from *The Loeb Classical Library*. I have taken the liberty of italicizing a few words and phrases for the purpose of emphasizing a comparison. Occasionally a word of explanation is inserted in brackets.



KEY TO THE DIAGRAM.

-
- P to Q=Pompey's line of battle.
 A=Pompey's infantry in three ranks.
 B=Pompey's cavalry, slingers, and archers.
 M to N=Caesar's line of battle.
 C=Caesar's infantry in two ranks.
 D=Caesar's cavalry.
 S=Supports, composed of six picked cohorts.
 R=Reserve, composed of the third rank, drawn from each legion.
 Caesar's infantry amounted to 22,000.
 Pompey's infantry amounted to 47,000.

As to the second blunder, the necessity for providing a reserve force is given as one of the first principles to be observed in infantry attacks. In *Infantry Training*, 1914 (Sect. 121, Par. 2), we read: "Part of the infantry available will form *the firing line*, a portion of which will usually be kept back to form *supports*. Behind these will follow *local reserves* in the hands of battalion, brigade, and divisional commanders," and in Section 122, Par. 5: "Next to the conception of a sound plan of attack the most important duty of a battalion commander is the handling of his *local reserve*. It is by means of this reserve that he makes his influence felt in action."

If, then, the rules of our General Staff are sound Pompey committed two serious blunders, firstly in drawing up his line of battle fully deployed and exposed to Caesar's view, and secondly in providing neither supports nor reserves for any part of his line.

Let us now consider the disposition of Caesar's forces and his plan of attack. A study of the diagram will show Caesar's legions drawn up in the following manner: The whole line M to N is occupied by the first two ranks only, the third rank of each legion being kept back to form a *reserve*. Out of this third rank Caesar has selected six cohorts as *supports*, and has stationed them at the critical point opposite Pompey's cavalry. Thus we see that Caesar's division of his forces into "*firing*" or *attacking line*, *supports*, and *reserve* follows precisely the system laid down by our General Staff. And indeed this division of his attacking force is only common sense, for if any point of the battle line is broken he can throw forward his *reserve*, while his supports are placed where they are likely to be most needed, that is, opposite Pompey's cavalry. Pompey, on the other hand, has placed his whole force of infantry, cavalry, archers, and slingers in the attacking line from the outset, so that he has not a single man in reserve to reinforce any part of his line which may be broken. As we have seen he has but one idea—to overwhelm Caesar's right wing by the sheer weight of his cavalry.

We should now be in a position to appreciate what actually took place and this we shall allow Caesar to tell in his own words as translated by *The Loeb Classical Library* (page 329):

"And after a brief interval, again renewing their rapid advance, they (Caesar's men) discharged their javelins and

quickly drew their swords, according to Caesar's directions. Nor indeed did the Pompeians fail to meet the emergency. For they parried the shower of missiles and withstood the attack of the legions without breaking their ranks, and after discharging their javelins had recourse to their swords. At the same time the horse on Pompey's left wing, according to orders, charged in a body and the whole multitude of archers poured forth. Our cavalry, failing to withstand the attack, gradually quitted their position and retired. Pompey's cavalry pressed forward all the more eagerly, and deploying by squadrons began to surround our lines on their exposed flank. Caesar, observing it, gave the signal to his fourth line (i.e. *the supports*) which he had composed of six cohorts. These advanced rapidly and with colours flying attacked Pompey's cavalry with such fury that not one of them stood his ground, and, all wheeling round, not only quitted the position but forthwith in hurried flight made for the highest hills. When they were dislodged, all the archers and slingers, left defenceless *without support*, were slain. With the same onslaught the cohorts surrounded the left wing, the Pompeians still fighting and continuing their resistance in their lines, and attacked them in the rear. At the same time Caesar ordered the third line (i.e. *the reserve*) which had been undisturbed and up to that time had retained its position, to advance. So, as they had come up fresh and vigorous in place of the exhausted troops, while others were attacking in the rear, the Pompeians could not hold their ground and turned to flight in mass. Nor was Caesar wrong in thinking that the victory would originate with those cohorts which had been posted (*as supports*) opposite the cavalry, as he had himself stated in exhorting his troops; for it was by them that the cavalry was first repulsed, by them that the archers and slingers were slaughtered, by them that the Pompeian force was surrounded on the left and the rout first started."

We have seen then that the disposition of Caesar's troops conforms precisely to our own methods for infantry in the attack and his success was certainly the result of his tactics, for he was fighting against a force which outnumbered him two to one. It is to be remembered also that this was a battle fought by Romans on both sides, not by Romans against untrained barbarians. But perhaps the most remarkable thing about Caesar's tactics on this occasion is that the formation

which he adopted was originated on the spot after he saw how Pompey's line of battle was drawn up. The usual method of drawing up a line of battle was to station the legions in three ranks just as Pompey had done. Caesar's plan of removing the whole of the third rank from each legion, transforming it into a new unit and using it as a reserve force was decidedly novel, and his use of the six picked cohorts posted opposite the point of danger was as novel as it was successful. As he himself points out in the passage quoted above, the six cohorts, acting as *supports*, were the determining factor in winning the battle while the *reserve* behind them finished the business by completely routing the enemy.

Even with regard to the manner of advancing to the attack Caesar and our General Staff are in complete agreement. Pompey had previously ordered his men to await Caesar's attack without moving from their position. The following extract from chapter 92 gives Pompey's reasons for this command together with Caesar's comments:

"He is said to have given this command on the advice of G. Triarius, in order that the first charge and impetus of the troops might be broken and their line spread out, and that so the Pompeians marshalled in their proper ranks might attack a scattered foe. He hoped, too, that the javelins would fall with less effect than if they themselves discharged their javelins and advanced; also that by having a double distance to run Caesar's soldiers would be breathless and overdone with fatigue. Now this seems to us to have been an irrational act on the part of Pompeius, because there is a certain keenness of spirit and impetuosity implanted by nature in all men which is kindled by the ardour of battle. This feeling it is the duty of commanders not to repress but to foster, nor was it without good reason that the custom was instituted of old that *signals (bugles) should sound in every direction, and the whole body of men raise a shout*, by which means they thought that the enemy were terrified and their own men stimulated."

Compare these words of Caesar with the following from *Infantry Training*, 1914 (Page 134, Par. 5):

"The main essential to success in battle is to close with the enemy, cost what it may. A determined and steady advance lowers the fighting spirit of the enemy and lessens the accuracy of his fire. Hesitation and delay in the attack have the opposite effect."

And on Page 146, Par. 3, we read:

‘The commander who decides to assault will order the *charge* to be sounded, the call will at once be taken up by all buglers, and all neighbouring units will join in the charge as quickly as possible. During the delivery of the assault *the men will cheer, bugles be sounded and pipes played.*”

The next thing to consider is the proper mode of procedure when the assault has been successful. On this point read *Infantry Training*, 1914 (pages 146 and 147).

“If the assault is successful and the enemy driven from his position, immediate steps must be taken to get the attacking infantry in hand for the further work that lies before them. . . . A portion of the troops must at once be pushed forward to harry the retreating forces. . . . *Units must be ready to carry on the pursuit by day and night without regard to their exhaustion. . . . A commander must demand the impossible and not think of sparing his men.*”

Compare Caesar’s orders after the assault, (chapters 95, 96, 97) :

“When the Pompeians were driven in flight within the rampart of their camp, Caesar, thinking that no respite should be given them in their terror, urged his men to take advantage of the kindness of fortune and attack the camp. And *though fatigued by the great heat*, for the action had been prolonged till noon, they nevertheless obeyed his command with a spirit ready for every toil. . . . Caesar, having got possession of the camp, urgently demands of his men not to let slip an opportunity of completing their task through absorption in plunder.”

The Pompeians, who had escaped from the battle-field and from the camp and had taken up their position on the neighbouring hills, began to retreat along the ridges. Caesar immediately followed them up with four legions.

“On observing this the Pompeians halted on a certain hill. The foot of this was washed by the river. Caesar exhorted his troops, and then, *although they were worn out by the continuous toil of a whole day, and night was now coming on*, nevertheless cut off the river from the hill by a line of fortifications, so that the Pompeians might be unable to get water at night. When this work was concluded the enemy sent a deputation and began to treat of surrender.”

These then were the tactics of Julius Caesar in the battle of Pharsalus and a study of them explains to a great extent his

reputation as one of the greatest generals of antiquity, while a comparison of his methods with those of our own General Staff would seem to show that, after due allowance is made for the difference in weapons, the fundamental principles of military tactics are the same now as they were two thousand years ago.

G. W. MITCHELL.

NOTES OF A NORTHWESTERN TRAIL.

ON June 1st, twenty-three years ago, I left Regina in advance of an exploration party which was proceeding northwards into the Athabasca-Churchill river country. My particular duties were to proceed to Prince Albert over the newly-completed Regina and Long Lake Railway and from Prince Albert to travel northwestwards one hundred and fifty miles to Green Lake, taking with me overland two Peterborough canoes and some camp equipment. At Green Lake I was to await the arrival of the chief and other members of the party. In those days I kept a diary and I will transcribe a portion of it—as faithful a copy as I can of the conditions at that time and their impressions. What a desolation the country between Regina and Prince Albert was even in this prairie springtime! an infinity of flatness and short grass traversed by parallel rows of grass-grown buffalo runs which seemed always to be leading off to the long low horizon.

There were no houses where now is one of the best wheat growing districts of the west. Nothing but an occasional water tank; our train left Regina at 9 a.m. and was due at Prince Albert at 9 in the evening. Sometimes we waited on the lonely landscape to avoid being ahead of our schedule, not that it could matter much whether we reached a water tank on time, but we had to be at Saskatoon, the crossing of the South Saskatchewan, for a meal.

We crossed a low bridge over this river and pulled up at a long, low log shack where we were well fed for fifty cents apiece. The only other objects in view besides ourselves were the bridge and a few cords of buffalo bones awaiting shipment to a sugar refinery or fertilizing plant in the East. These were the beginnings of Saskatoon.

Prince Albert, in the broad wooded valley of the North Saskatchewan, had long been isolated from mechanical civilization and retained its old time conditions much more than is usual with the terminus of a pioneer railway in Canada. It had an air of Hudson's Bay Company, Red River and the Great Plains, such as may cling long to a place in touch with the wilderness beyond it but with only a thin thread of steel rails leading back to the main highways of civilization.

The Honourable Hudson Bay Company supplied us with freighters to carry the frail canoes over the rough trail to Green Lake; these were lashed side by side to a framework on a wagon. The rest of the company consisted of three oxen, a Red River cart, another wagon and four ponies, all under the care of a venerable halfbreed, his son Henry, and his son-in-law Julius; Julius was a great stolid fellow; he could talk English a little and did so with an expression of mixed gravity and perplexity which was laughable. He impressed upon me the necessity of some little things which might be useful on the trail, then departed to his people who were now camped across the river, with the understanding that we would start next morning. Next morning came and I found them all sleeping soundly, instead of being ready to start. Julius went off to look for the horses, but returned without them. "Damn strange," he said in his perplexed way, thoughtfully stroking his bristly black hair with his left hand. At noon the recreant animals were found and we proceeded on our way, the old man leading the caravan with the canoes laced upside down upon his wagon. We passed at first through wooded sand hills and came at evening to Round Plain, near which we camped. Julius established himself as high priest of the cooking and did it very well, but being unused to the beneficent effects of baking powder as a means of leavening bannocks, applied it with such valor that the results astonished him. These people, natives of the plains, travel by short stages and start very early in the morning. At daybreak the first thing I heard in the chill morning air was the sound of prairie chickens, strutting and drumming on a little mound near by, then a report which put a sudden stop to their early matins, or "stag dance", as it is called, a most grotesque performance which always reminds me of Darwin's Terra del Fuegians who went up a little hill to howl a greeting to the rising sun.

The second day's travel was through thick, muddy, poplar woods with occasional obstructions in the form of mud holes and fallen trees; towards evening we emerged from these on to a prairie upland beside Shell river, a lovely country of mixed prairie and trees, spruce and poplar; now settled, I believe, by farmers. Our camp was in one of these little meadows which carried scars of the buffalo days in the form of grass-grown trails and wallows; at sunset a long, creaking caravan of Green

Lake Indians in Red River carts passed us on their way to Prince Albert.

The third day we continued along the Shell river for a time, then crossed it and went northwards. The day was hot and flies intolerable. In the afternoon we approached a more hilly, sandy country full of plateaux and spruce grown ravines, and camped at the Sandy Lake Indian Reserve, a well placed reservation round the shores of a lake well stocked with white-fish. Julius, having grown tired of making bannocks, persuaded the Indian women to cook enough for several days. We heard here of a great dance to be held soon on Big river, which was on our way forward—a yearly festivity for all the bands of Indians in the district.

On the fourth day we entered some low and wooded hills, thence descended to the grassy valley of Big river. This was the point of concentration for the Indians' dance, which was to take place on a little plain on the western side of the river. Already there were about twenty lodges set up and more arriving rapidly. Parkman in his "Oregon Trail" has pictured Indian encampments asleep and in action; this one was in action, horses roaming the hillsides, dogs, children and squaws roaming the little woods and beside the river, dogs howling, children calling, and a multitude of little fires. A large lodge, made mostly of poles and leafy branches, was being put up for the dance, by the women. This ceremonial dance takes place at a certain stage of the leaves; it seems to be a sort of May Day idea. Evening settled things down until some approaching friends, or other sufficient reason, started a fusillade of gunshots; each man seemed possessed with the idea that his salvation depended upon loading very quickly so as to fire again. This sort of thing kept up all night, the shots being fired through the smoke-hole apex of the lodge, or its doorway. and sleep was impossible, for this set the dogs howling as well.

Next morning my companions were loath to move on. More Indians were arriving and most Indians are cousins, or say so, but we left the dance camp and proceeded through a country of long grassy slopes and wooded hollows, also many little lakes, at one of which we waited for an Indian to lift his nets. A thunderstorm came up and evening settled in a drizzling rain. At this camp one of the oxen strayed back; perhaps he meant to be a burnt offering at the dance, at any rate he returned with a halfbreed on his back at a brisk trot.

Next day, the sixth out from Prince Albert, we met a foraging band of Pelican Lake Indians en route to the dance, all wearing blankets and having about them the proceeds of hunting. One would have several sorts of waterfowl dangling at his waist, another half a dozen muskrats, others with eggs or young birds. Such visitations mean a smoke and often a feed, but in time we pushed on and re-entered the valley of Big river amidst heavy woods. Here a cart axle broke, and we had to camp early while it was being renewed by Julius and Henry.

The old man was patriarchal, he led the way and drove the wagon with the canoes on it, but nothing else. He ate his meals alone, or if he had a bird or other choice portion would invite me to sit with him, otherwise I also ate my meals alone, but Julius and Henry squatted round the fire in less lonely state. The old man, son of a Hudson's Bay factor, spoke English well; he had been to Red River to school when young but the life of the plains possessed him entirely. He told me many stories of the buffalo days and how the Indians expected them to return; how he had seen the boulders grow from year to year alongside the trails to Carleton and Fort Pitt. In these days, he said, all men must work or starve; in the good old days they only had to hunt and live in plenty. He was a gentle old man, but his dog "Powtherr", as Julius called him, was a most inflammable beast. I have watched the old man, who carried his own tea kettle and made his own fire, patiently trying to make that fire on a wet evening with his flint and steel and tinder, refusing all aid in the way of matches; he clung to what old customs he could.

On June 10th, seven days out from Prince Albert, the trail passed through heavy timber, sand hills and muskeg, all very tiring to the caravan. So we camped early in a beautiful green grassy glade. From this place onwards to Green Lake there is a continuous forest, with no grass for the animals. At nine o'clock next morning we descended a slippery clay hill to a little clearing beside the eastern end of the lake; all around was an unbroken prospect of green woods, with a short view of lake water. A peaceful spot—peaceful to the point of desperation—it looked as if no one had been there for months, nor, after a few days of solitude, did it seem as if anyone would ever come to it again. Robinson Crusoe at least had a wide prospect and a dog, but I had nothing, for my companions of

the past week, after consigning their loads to my care, turned about and hastened back to the open grassy country, where, no doubt, they soon joined their half-brethren at the Big River dance. The old man with some felicity bade me farewell with a "God bless you", and I was left alone. Somewhere—for I had no map—was a Hudson's Bay post about eighteen miles up the lake westwards, but here was nothing but silence; an empty warehouse and a little cottage beside the edge of the clearing—it had lost its door and window. The first evening (Sunday) I took possession of this place, but next day put up a tent in the middle of the clearing where things could not come in through open doors or windows, if any there were to come or seem to come. The warehouse had a hastily abandoned earthwork around it. In the 1885 Rebellion, it is said, a detachment came up here from Prince Albert to defend its valuable contents of the winter fur catch against a raid by Cree Indians. It was raided, and the furs carried off, but before that happened the defenders had become fearful and decamped. Two loons, fit occupants of lonely lakes, addressed their cries and attention to me. I had no gun or I might have replied to their mocking voices. Day after day passed in too perfect peace, and it grew monotonous. One evening a solitary Indian appeared in a canoe. I tried to find from him the whereabouts of the Hudson Bay post, but got little information. As another evening and another night as well as tranquillity approached, I put one of the canoes on the lake and set forth to find Green Lake Post. Twilight is a matter of hours in northern regions in the month of June and as I was seeking a smooth shore on which to sleep I saw against the skyline to the west outlines too square for trees and continued my way. It was the Post; a white man with a heavy black beard met me on the beach—the officer in charge, a Mr. Dreever, who had come out to the Hudson's Bay service by way of Hudson Bay in 1860. Here I was very welcome, and glad to talk again to some one.

Next morning I saw the winter catch of fur and the pressing machine which made it up into bales. Some of them with as many as eight hundred rat (musquash) skins, others of more valuable fur worth six or seven hundred dollars a bale. This post was one time of more importance, as a building place for York and flat boats, to be used on the Hudson Bay, Lac La Cross, Methy Portage route to Athabasca River and the Peace.

Now the trade passed by way of Edmonton, Athabasca Landing and the Hudson Bay steamers on Athabasca, Peace and Mackenzie rivers, as it does at the present time; so the old Churchill River route was abandoned as a through route and its glories were declining. There has always seemed to me to be more history about these old posts than in much older places in Eastern Canada; perhaps it is the sense of decay and the presence of ancients who live more or less on the bounty of the Great Company.

Returning next day, for I feared to be absent should the Chief arrive, I found my solitary glade as I left it, a thin blue smoke arose from the Indian's tent, now moved further on, for no place is home to these people except it be a setting of wilderness. Next day was rainy, dull enough in a little "A" tent with nothing to do, but as darkness came so came a welcome sound of wheels. A democrat drove up but not with my people. It was Alick Sand, a halfbreed, bringing the young daughters of the Chief Factor at Isle La Crosse to meet and return with the brigade of flat boats or batteaux soon expected with the winter fur catch of the district.

I turned over the wretched little cottage to them; indeed it was not mine to bestow, but my sense of proprietorship had grown with my stay. I also gave them provisions, but as Alick Sand's ideas of being generous to himself were quite comprehensive I had to stay his hand.

Next day, June 19th, at midday, we heard the measured beat of great oars or sweeps away up the lake long before we sighted the approaching brigade—great flat-bottomed batteaux, eight men rowing, four on each side and one steering; women, children, dogs and all the motley of an Indian camp aboard. Their first occupation on reaching the shore was to have a good stare at everything, myself in particular. Then began the unloading the boats and placing of fur bales in the warehouse. Indians, so quiet and deft in ordinary life, seem to become possessed when they work on a brigade; half naked and bareheaded they pile great loads on their backs, then start off at a low swinging trot, cast it down at the appointed place and return swiftly for more. This work done, a sail or other makeshift shelters them from the sun or rain. Meanwhile the fires are lighted and meals are cooked—such meals! Fish or animals are split open, placed in a cleft stick which is stuck in the ground beside the fire, and eaten at any stage between

warm outside and quite cooked; bread is made by opening a sack of flour, pouring in some water, stirring this with a short stick until a fair sized lump adheres to it, then toasting it as before in front of the fire, or, if in no great haste, the cake may be flattened on an adjacent smooth rock. Tea and very fat bacon are treats; the bacon is reduced to oil and the solid parts cast to the ever hungry, prowling dogs.

Work and food being over, these savages betake themselves to gambling, their shouts and the unceasing tom-tom drums lasted until morning—a violent transition in my peaceful spot.

The day after the savages arrived brought the Chief; our cook, a Nova Scotian, some time resident in the West and a spectator of the Duck Lake fight of 1885. The driver who brought them up was lately from the east, he was new to the ways of the west and had been stimulated by grizzly bear and Indian stories furnished by the cook. He contemplated the return journey to Prince Albert by himself with mortal dread, refused provision for the way back, saying it was his firm determination to neither eat nor sleep until he got there.

Some days later we reached Isle La Crosse Hudson's Bay Post, headquarters of the district, and taking with us two Chipewyans and a French halfbreed interpreter, set out upon the real exploration, from which we did not return until October.

J. C. GWILLIM.

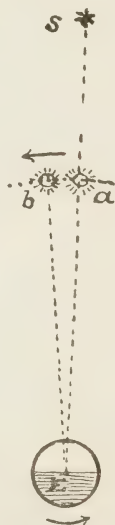
NATURAL MEASUREMENT OF TIME.

The Sidereal Day. As a tentative definition of a sidereal day we may say that it is the interval of time elapsing between two consecutive transits of the same star.

This definition, although not rigidly correct, will answer our present purpose. And after sufficient discussion of the subject we shall be able to arrive at a correct definition.

Every astronomical observatory is furnished with a good clock which divides the sidereal day into 24 equal parts called sidereal hours, each hour into 60 sidereal minutes, and so on. This clock is called a sidereal clock, and the time indicated by it is *sidereal time*. And it may be said in passing that to the working astronomer the sidereal clock is of more importance than the mean time one, as being more generally useful.

In the accompanying diagram, let s denote some particular star, taken as a star of reference by which to determine sidereal time, and let a and b denote the positions of the sun as seen from the earth E on two consecutive days at noon, the direction of motion of the sun, and of the rotation of the earth being indicated by adjacent arrows.



And for the sake of ease of explanation, let us suppose that on a particular day at noon, the centre of the sun at a and the star s are in the same direction as seen from E . Then, on the following day at noon the star will have remained unmoved while the sun will have advanced from position a to position b . The rotation which brings the meridian of a place from s around to s again measures a sidereal day, while it requires the same amount of rotation plus the angle aEb to measure out the solar or the mean day, according as a and b represent the positions of the real sun or those of the mean sun.

We see, then, that if the star were absolutely fixed in position, a sidereal day would be, according to our tentative definition, the time required by the earth to make one rotation on its axis.

We see also that the solar day and the mean day are each longer than the sidereal day by the amount of time required by the earth to rotate through the angle aEb . Now, as the sun makes an apparent revolution of the heavens in about 365 days, this angle aEb is, on the average, about one-365th of the circle. And as the earth rotates once in 24 hours, this angle represents in time about one-365th of 24 hours, or about $3^m 57^s$. By this amount then is the mean day longer than the sidereal day.

To put this under another form. Suppose that we have two standard clocks, a sidereal one and a mean time one, both reading to 24 hours, and at a particular moment both clocks indicate $0^h 0^m 0^s$. The sidereal clock will gain on the mean time clock at the rate of about $3^m 57^s$ per day, so that after one year from the aforesaid moment, the sidereal clock will have gained 24 hours on the mean time clock, and the two clocks will again read $0^h 0^m 0^s$.

This shows us that if both clocks read $0^h 0^m 0^s$ at the beginning of the year, the amount by which the sidereal clock is ahead of the mean time clock, at any epoch in the year, indicates exactly the part of the year that has passed away, up to this epoch.

Thus when the sidereal time is 6 hours in advance of mean time, exactly one-fourth of the year has passed; and if the difference be $10^h 20^m$, the sidereal clock being ahead by this amount, exactly seven-sixteenths of the year has passed.

To test the running of a watch by a star.

A star, in its apparent daily revolution about the earth, follows the same course from day to day, and comes to the meridian, or to any determined point in this course, $3^m 56^s.5$ earlier each day as measured by mean time.

Choose any star that sets somewhere near the west and which, in going down, disappears behind some distant well-defined object, such as the roof of a house. Fix a post to guide the position of the eye, and, keeping the eye at this point, note the time by the watch at which the star disappears. If this is done for several consecutive evenings, the records should get earlier by $3^m 56^s.5$ each evening if the watch or clock is running correctly on mean time.

Of course, without some further knowledge, this will not enable one to get the correct mean time, or even the correct sidereal time, its only purpose being to ascertain the rate of the watch or clock compared.

Difficulties in the tentative definition.

The tentative definition which we have so far adopted is subject to several difficulties which we go on to examine.

First.—The so-called fixed stars are fixed or stationary in the heavens only with respect to superficial observation. Accurate instrumental measurements show that every star has its own proper motion and that the stars, instead of being at rest in space, as the term fixed star would naturally seem to denote, are moving, each with its own motion, some eastwards and some westwards, some northwards and some southwards, some towards us and some away from us, and in all cases with velocities which are very great as compared with any known on this earth—velocities from 10 miles to 200 miles per second of time.

The seeming fixity of the stars, by which the grand constellations undergo no visible change during the years of the longest human life, is due to their very great distances, which render their movements quite insensible to common or cursory observation.

The nearest fixed star as far as is known, Alpha Centauri, is at the great distance of about 25 trillions of miles, or nearly three hundred thousand times the distance of the sun, and has an apparent proper motion of $3''.7$ per year, which is equivalent to a real linear velocity of 15 miles per second.

If this star were taken as a reference star for the measuring of sidereal time, this small motion of $3''.7$ a year, if eastward or westward, would make the length of the sidereal day differ by nearly 0.0007 sec. in time from what it would be if the star were at rest, and this, in a year of 365 days would amount to about a quarter of a second. And some stars might make this difference less, and some would undoubtedly make it greater, so that for the sake of uniformity it would be necessary for all astronomers to fix upon the same star as a star of reference.

And of the thousands of stars which appear in the nightly vault, no star transcends its fellows to such an extent in every

respect as would justify us in elevating it to the position of a leader; besides a unity of choice might be difficult to get.

Second.—A star does not appear to be where it is. This would not be the case if the earth were at rest, or if light were instantaneous in moving from place to place. But neither of these things are so. The earth moves along in a nearly circular orbit at a velocity of 18 miles a second, while light waves travel onwards at the speed of 186,000 miles a second. And the compounding of these two motions has the effect of throwing the visible representation of the star forwards to a maximum angle of $20''.5$ in the direction in which the earth is moving.

The consequence is that the visible star makes an annual journey about the real star, the path being an ellipse with its semi-axis major the constant $20''.5$, and its semi-axis minor varying from this amount to zero, depending upon the situation of the star in relation to the earth's orbit.

The apparent displacement of a star due to the causes now mentioned is called the star's *aberration*.

Observations upon such a wandering star would have to be corrected so as to give the place of the real star before such observations could be of practical use in regulating the sidereal clock, and such corrections would render the whole matter complex instead of simple. Of course all these difficulties could be overcome, if there were no other objections to taking a star as a standard for obtaining sidereal time.

Third.—The beginning of the sidereal day, and the epoch at which the two clocks, mean time and sidereal, are together, should have some fixed and determinate relation to the year. But no such fixed relation exists between the year and any star whatever. And under these circumstances we must search for some other way, than by that of the stars, of controlling the beginning and length of the sidereal day; and this we proceed to do.

The great circles of the heavens. If the earth were a transparent sphere containing, as lines on its surface, meridians and parallels of latitude with the equator, an eye placed at the centre would see all these projected on the general surface of the heavens. The projection of the two poles would give the celestial poles and the projection of the equator would give the celestial equator, and the celestial meridians would all

pass through the celestial poles and cross the celestial equator at right angles, and we would thus have, on the surface of the heavens, a magnified and corresponding copy of the lines of reference upon the surface of the earth.

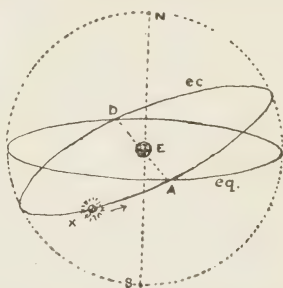
We have, then, in the *celestial equator* a great circle which divides the whole heavens into two equal hemispheres, a northern hemisphere and a southern one.

Again, the plane of the earth's mean orbit about the sun, when extended indefinitely outwards, cuts the surface of the heavens in a great circle called the *ecliptic*, because of its relation to eclipses.

We say the earth's *mean* orbit to indicate the path of the earth's centre with some infinitesimal variations, due to the attractions of the planets, left out.

The two great circles with which we are more immediately concerned are the equator and the ecliptic, and as these are inclined to one another at the angle $23^{\circ} 27'$, they cut each other in two opposite points called nodes (nodus a knot).

In the accompanying illustration, *E* denotes the earth, *N* and *S* the north and south celestial poles respectively, *eq* the celestial equator, *ec* the ecliptic, and *A* and *D* the two nodes. The direction in which the sun is moving is indicated by the arrow.



As astronomical science seems to have been developed first in the northern hemisphere, it is customary to call the north side of the celestial equator the upper side. And hence the node, *A*, at which the sun, in its apparent annual journey about the earth, passes from below the celestial equator to above it, is the *ascending* node, and the opposite one, *D*, is the *descending* node.

The ascending node is called also the *vernal equinox*, from the circumstances that when the centre of the mean sun arrives at this point spring begins, and the day and the night are equal in length. The point is called also the *first point of Aries*, because this point marks the beginning of the conventional sign of Aries, one and the first of the twelve signs or constellations of the zodiac. As a consequence, this is undoubtedly the most important point in the heavens, and is worthy of being taken as the fiducial point from which measurements are to be made.

Precession of the Equinox.

The position of the ecliptic in the heavens is a fixed one, or is assumed to be so; that is, its plane is taken to be the invariable plane of the universe. But this is not the case with the equator. The position of this latter circle depends upon that of the celestial pole, *N*, and this again upon the direction of the earth's axis. And the earth—and especially its protuberant equatorial parts—is acted on by different forces, principally the attractions of the sun and the moon, and these forces so interfere with the even tenor of its course as to cause the pole *N* to describe a sort of corrugated circle in the heavens—a corrugation being described in about 18 years, and the whole circle in about 25,000 years. The consequence is that the point *A*, that is the ascending node, moves slowly and irregularly backwards along the ecliptic, or in a direction opposite to that indicated by the arrow.



This retrograde movement amounts upon the average to $50''.3$ per year, and is known as the *precession of the equinox*.

The mean position of *A* from day to day throughout the year is the *mean equinox*, or the mean position of the ascending node, and the sidereal clock, if correct, reads $0^h 0^m 0^s$ when the mean equinox is on the meridian.

And thus one sidereal day ends and the following one begins at the moment of meridional transit of the mean equinox, and the length of a sidereal day is the interval elapsing between two consecutive transits of the mean equinox.

It appears, then, that the terms sidereal day and sidereal time, although commonly used, are somewhat of a misnomer, inasmuch as a sidereal day has really nothing to do with the stars.

As the mean equinox moves backwards $50''.3$ in a year, it is easy to determine that it must recede at the rate of $0''.14$ per day. And as $15''$ in arc is equivalent to 1^s in time, we see that the length of the sidereal day is less than the time required for the earth to make one rotation on its axis, by almost one-hundredth of a second in time.

Practical use of Sidereal Time. In registering the position of a place on the earth we put down its latitude and its longitude, and all places having the same longitude, that is

lying on the same meridian, have the same time. To make this registration complete it is necessary that we choose some one meridian as a zero meridian from which to start, for to give the longitude of a place without at the same time indicating the point from which we start to estimate our longitude is to give no knowledge whatever. All British people, as well as those of some other nations, have agreed to adopt the meridian which passes through the Royal Observatory at Greenwich as the zero meridian. And it is customary, where this is not the case, to state the zero meridian in the form $2^h 30^m$ west of Washington, or Paris, etc., where the meridians of one of these places is taken as a zero meridian.

In like manner the position of a star is registered by putting down its declination and its right ascension, declination in the heavens being analogous to latitude upon the earth, and right ascension to longitude. The zero meridian in this case is the celestial meridian which passes through the ascending node. And as nationalities do not extend into the heavens, there is no variation on this usage.

The British Nautical almanac gives the places of about 200 stars—known accordingly as almanac stars—in which the places are corrected for proper motion, for aberration, for precession, and for all other sources of error, for every tenth day throughout the year.

These stars may be called the foundation for all work involving measures of time, and their right ascensions are read from the zero meridian eastwards, in terms of sidereal time, throughout the circuit of the heavens. Thus if the right ascension of a star be $18^h 32^m 56^s$, the sidereal clock should show this time when the star is on the meridian, and if it does not do so the discrepancy is the clock-error; for instead of trying to keep his clock exactly to time—a quite impossible task—the astronomer obtains, by star-transits from night to night, a record of the error and rate of his clock, and applies these as corrections to the results of his observations.

While day observations depend upon a mean-time clock and have only one body, a somewhat irregularly moving sun, upon which to rely, those made at night have numerous points of reference in the many registered stars which change their apparent places with extreme slowness. And thus we can understand that the sidereal clock is, to the astronomer, a more convenient instrument than the mean-time one is.

THE YEAR AND ITS LIMITATIONS.

In considering the length and limitations of the year it becomes necessary that we at first define the word *year* so as to know exactly what is meant when we speak of it.

A year is the length of time taken by the earth to make one revolution about the sun, starting from some indicated point in its orbit, and returning to the same point again. That the point should be fixed in space is not an element of the definition, for it is doubtful if we can know anything about absolute fixity in space. It is enough that the point should be of sufficient prominence in the theory of planetary motion to make it a point of importance.

Astronomers define three different years, or rather three kinds of year depending upon the particular points taken. And over and above these there is the calendar or practical or civic year, that is, the year used in and for the practical purposes of life. This last, although derived from one of the defined years, is variable in length and is not strictly definable.

The three years defined are not of equal importance from the point of view here set forth, and the first two that we shall consider are of very little importance except to the astronomer.

Anomalistic Year.—On page 355 of the *Quarterly* for April, we have an explanation of what is meant by the earth being in perihelion at *a* and in aphelion at *z*. Either of these points may be taken as a point for defining a year.

Now the line joining the points *a* and *z* passes through the sun at *S* and is known as the line of apsides or the *apsis* line. The angle between the direction of this line and that of the sun at any time is called the sun's *anomaly* at that time. Thus, with the earth at *a* or in perihelion the sun's anomaly is zero, and with the sun at *b* its anomaly is the angle *bSa*, etc.

Hence the anomalistic year is the length of time taken by the earth to go from the perihelion around to the perihelion again; or, for the sun, apparently, to go from any given anomaly to the same anomaly again. The perihelion point is taken as the point of reference, and the anomalistic year begins when the earth is in perihelion, which in the present year of our Lord is not far from the first of January.

The sun's angular diameter, as seen from earth, is a function of the sun's distance from the earth, and as this angular diameter is easily measured, the variations in the

sun's distance are easily determined. So it is quite a possible and practicable operation to find when the sun is nearest the earth, or when the earth is in perihelion, and accordingly when the anomalistic year begins.

In this way it has been discovered that the perihelion point *a* is not a fixed point in relation to the general positions of the stars, but that the apsis line has a slow progressive movement, that is, a rotation in the same direction as that in which the earth moves in its orbit.

In this manner the length of the anomalistic year has been found to be 365.2595 days.

The Siderial Year. The siderial year has no intimate connection with the siderial day or with siderial time, and it is usually defined with a star as a fixed point—thus a siderial year is the length of time required by the sun, in its apparent annual motion about the earth, to go from a given star around to the same star again.

But, as pointed out before, the stars instead of being at rest, have each its proper motion so that siderial years determined from a number of different stars might not be altogether consistent with one another. This difficulty is to be overcome by either finding a star which is absolutely at rest—a difficult if not an impossible undertaking—or finding the proper motion of some individual star, and then allowing for this motion when determining through this star the length of the siderial year.

To give some idea as to how this may be done, let us suppose that there are two stars affected with the same, or about the same, linear proper motion, and that one of these stars is ten times as distant as the other. Then the angular motion of the near star would be ten times as great as that of the distant one, so that we have the proper motion of the near star to within one-tenth of its true value. And as all these motions are exceedingly small when taken for a single year, and as such observations can be repeated at liberty with stars very much more distant than our supposed one, the proper motions of all the nearer and brighter stars may be determined to within very close limits. The length of the siderial year is thus found to be 365.2567 days, which is 0.0028 days, or about 4 minutes shorter than the anomalistic year.

It may be said in passing that the only use of the sidereal year is to act as a basal period of time in fixing quantitatively the progression of the perihelion and the retrogression of the equinox, or, as it is generally called, the precession of the equinox.

The Equinoctial or Tropical Year. As its name indicates, this year has a relation to the equinoxes, and the point of reference here taken, in order to fix the length of the year, is the vernal equinox, or the first point of Aries, (see page 20). So that the Tropical year may be defined as the time taken by the sun, in its apparent revolution about the earth, to pass from the vernal equinox around to the vernal equinox again.

This is the period of time popularly known as the *year*, and its importance is manifest in all our seasonal relations. And whatever may take place upon this earth—whether there be peace or war, famine or bounteous plenty, happiness or misery—as long as the sun continues to shine and the earth to move in its wonted course, the orderly procession of the seasons will never fail.

Long before man came upon the scene, the great continents, with the smaller islands of the seas, have been cheered by the revivifying influence of spring, have basked in the warmth of the growing summer season, have yielded their fruits to the brown and ripening autumn, and have in due time put on the winding sheet of winter. And these things will endure even though man and all his works should perish. In very early times, when possessed of the crudest of astronomical ideas, and when such things as perihelia and anomalies and sidereal years were unknown, man found it necessary, in some way, to connect the length of his year with the orderly return of seed-time and harvest, for these latter things are mainly dependent upon the varying positions of the sun in relation to the equinoxes. That is to say that he found it necessary to establish in some way, however crude, an approximation to the length of the tropical year.

The problem of finding the true length of this year has been a problem of the ages, and although attempts at its solution must have begun with almost the beginning of man's intelligence, its complete solution has been attained to in only comparatively modern times.

It is sufficient to say here that this complete solution has shown that, at the present time, the length of the equinoctial or tropical year is 365.2422 days, and that it is thus 20 minutes and 53 seconds shorter than the anomalistic year. Moreover, it is highly probable that this length may vary to the extent of a second or so in a century.

Having stated the problem of the length of the tropical year and given the results obtained, we next go on to consider the means employed in the solution.

N. F. DUPUIS.

SWIFT'S ATTITUDE TO WAR AND RELIGION.

IN several of his works Swift gives a satirical account of the state of religion and politics in his time. He goes the length of saying that the foolish make them their playthings, and the ambitious the means to attain their selfish ends. In *A Tale of a Tub* the differences between the churches of Christendom are compared to a squabble between three brothers regarding the mode in which they should wear three coats left them by their father's will. Mud and dirt are hurled at the Roman Catholic and Presbyterian Churches. There is as little reason in the worship of saints as there is in a fashion of wearing a new kind of embroidery. The stern, composed, grave demeanour of the Presbyterians is no sign of inward holiness but of their wearing, in the language of Swift's allegory, a large plaster of artificial caustics. In *Gulliver's Travels* it is hinted that the disputes between Roman Catholics and Protestants are of a piece with those between the inhabitants of Lilliput and Blefuscu who break their eggs and eat them at different ends. As with religion, so with politics. To Swift, statesmen are either empty and vain like those of Lilliput, whose chief task was to amuse their master by walking on a tight-rope or by jumping over a stick, or they are criminal like those Gulliver described to the Houyhnhnms, ready to sacrifice thousands of lives if thereby their ambitions might be glutted. All such belittling comparisons signify that Swift looked with contempt on the political and religious disturbances of his time.

His attitude to them was not altogether unique, however; for in the sixteenth and seventeenth centuries a succession of thinkers held views not dissimilar. They thought party zeal baneful; they desired that religious and political quarrels should be settled by common sense and sane reasoning; they regarded with a cynical eye rulers and governments who, without considering the waywardness of human nature, endeavoured to drive their people into folds fenced about with laws and regulations. Montaigne, John Hales of Eton, and George Savile, Marquess of Halifax, were among their number. So far no critical work has even hinted at a connection between Swift and these writers. But without a doubt it exists.

I do not suppose that anyone will venture to say that it is a profitless task, this blowing away of the dust from the threads which connect these seventeenth century authors. But if anyone did dare to do so I would not violently disagree. This kind of literary study is in the height of fashion. It is regarded as an indisputable truth in our time that an author must be studied in relation to his age and the literary influences he has been subjected to. It is sometimes supposed, indeed, to contain the whole gospel of criticism. Thousands of books are sacrificed to it yearly, thousands of students dedicated to it. It has created huge fabrics full of roaring machinery, which must go on even if true learning grows emaciated and dies in the process. Feeling in this way about the study of literary influences and the comparison of one writer's opinion with another's, having a presentiment that such things are no better than an awful labyrinth shrouded in damp fogs, and being reluctant to leave the realities of the present to wander in an horrid nightmare, I may be pardoned for asking myself bluntly what I propose to gain by this investigation. I answer with equal directness that I propose to show that Swift's opinions on politics and religion were not eccentric nor quixotic nor the fruit of an embittered mind, but that they grew out of a conviction rooted deep in his own age and in that preceding it. Having established this and pointed out the differences of opinion between Swift and Montaigne, Hales, and Halifax, I propose to ask what these men, with their decided views on international, civil and religious strife, would have said to the present war.

I.

Montaigne, one may say with some truth, was the child of the Renaissance and the Reformation. The humanism of the one gave him an interest in himself and in all things connected with men, and a reverence for the wisdom of Socrates and Seneca, and for the stoical courage of Plutarch's heroes. It made him see life glorified,

Clad in the light of its immortal youth.

But the religious wars and the civil dissensions of the other reminded him of a reality less splendid than his sun-kissed dreams. He lived through the reigns of Francis II, Charles IX and Henry III. In his time took place the massacre of St.

Bartholomew, and the cold-blooded treachery of the murder of the Guises. The soldiery of both sides gave rein to its most violent passions at every opportunity. The leaders brought in ruffian mercenaries from Germany and Switzerland to help them to annihilate their fellow-countrymen. It was only when Henry IV—one who held no religious beliefs with conviction—came to the throne, that the warfare was carried on with any approach to decency. These dissensions coloured all Montaigne's thinking with a hue which some have called scepticism, and others cynicism, and others agnosticism. They forced him to take up the attitude of toleration and reserve which is characteristic of him; to assert that human judgments must always be incorrect because of the incompleteness of the data on which they work; and to praise solitude as the sovereign good of human nature, because in the midst of its quietness a man becomes conscious of his limitations.

All the troubles of his time grew, in his opinion, from a certain irrationality in the human mind, which could be exorcised only with the greatest effort if at all. Men are apt to think that only their own opinions are right, only their own skies fine, only their own civilization worthy. And yet any wide survey of history—Montaigne's favourite study—will prove them wrong. The greatest captains disagreed as to whether it was better to send men into battle arrayed in costly armour shining with the precious metals, or in serviceable armour of steel or iron. In how diverse guises appear Death, Poverty and Pain to different men. "Some await them trembling and fearful; others welcome them with a joyful countenance." The Christians despise the *Cannibales* for their brutality and want of culture; the *Cannibales* despise the Christians because they permit *haves* and *have-nots* in their midst and pay homage to puny kings. There is a vast deal of incertitude in human judgments: all the troubles in France had arisen, Montaigne thought, because this had not been taken into account.

In a very remarkable passage he states this definitely. Party zeal, he says in effect, the blindness of men to all but their own point of view, has caused infinite harm. Well-intentioned men on both sides have arrogantly pressed their own opinions and forgotten the rights of their neighbours. "It is common to see good intentions, when not managed with moderation, drive men into a seriously wicked state. . . .

Among good people, even, . . . it can be remarked of several, that passion hurries them beyond the pale of reason, and makes them sometimes follow unjust, rash and violent counsels."

In Montaigne's *Essais* and in the way in which he lived his life, you have the two weapons with which he fought against this error in his mind. In the first place he believed that if he knew himself, he would know also other men and as a consequence act without excessive zeal or passion towards them. The bias of self-righteousness would be corrected; the evil of intolerance exorcised. Therefore he set about that exploration of his mind and soul of which the *Essais* are the record, prying into all its nooks and corners, tearing away one by one the wrappings with which passion and prejudice had swathed his thoughts, and setting down in their naked simplicity the results of his search. In the second place he believed that solitude was the soil best suited for the growth of this plant of self-knowledge and its fruit, the spirit of tolerance. It was in consequence of this belief that 'at the age of thirty-eight . . . having been for long exhausted by the slavery of courts and public offices', he retired into his castle of Montaigne and began his long meditation on himself amid its quiet.

He did not live a hermit's life, it should be remarked. His family were about him and the rumour of troubles in it penetrated even into the tower he had set apart for his own special habitation. The whole life of the castle courtyard and of the countryside about it lay before his windows. A dozen years after his retirement he left it to go sightseeing in Italy, to become Mayor of Bordeaux, to entertain royal guests. Nevertheless, he never allowed the long tête-à-tête with himself to be interrupted. If away from his retreat he kept, so to speak, an isolated tower in his own mind—an *arrière-boutique* he called it—into which he could withdraw at will. 'We must keep an *arrière-boutique*, quite free, all for ourselves; make it our chief retreat and resting-place; in it establish our true liberty. There we must hold our daily talks with ourselves in such secret fashion, that no acquaintance, no outside element may find a place in them.'

The influence of 'honest old Montaigne' on English writers in the seventeenth century was far-reaching. The literary form of his essays, their long, seemingly aimless discussions

winding into the heart of a theme by devious rambling ways, their vivid phrases smelling of reality, their fashion of disregarding all but the marrow of a subject were the delight and admiration of Dryden, Cowley and Halifax. Montaigne, too, inaugurated the literature of confession. It is not likely that Isaac Walton would have spoken so freely of himself, nor Earle written his *Microcosmographie*, nor Pepys made his diary, had it not been for the renowned *Essais*. His influence on the life and thought of the seventeenth century was just as widespread as his influence on its literary forms, though, owing to the fact that it worked through underground channels, it is more difficult to trace. Many writers and statesmen confronted by the tragedy of civil war and of the endless dissension on religious matters, retired for a time from the din of strife into their *arrière-boutique*. Only a strong sense of duty kept Cowley, for instance, at his post as secretary to Queen Henrietta Maria; he was continually pressing to be allowed to go into solitude. The happiest part of Clarendon's life after the outbreak of the Civil War was that spent in enforced exile on one of the Channel Islands. Over the portal of the tower which he usually inhabited, he caused to be written the Montaignesque inscription—*Bene vixit qui bene latuit*. Halifax took every opportunity to escape from the roar and whirl of politics to the woods and flowers of Rufford. In these men and to a lesser extent in many others such as Falkland, Marvell, Penn and Temple, the leaven of Montaigne was at work.

II.

John Hales, commonly called the ever-memorable John Hales of Eton, lived a life of retirement from which like Montaigne he could not be drawn unless by command. He was born in 1584. In 1612 he became public lecturer in Greek to Oxford University. He attended the Synod of Dort in 1618 and wrote a series of letters describing the proceedings. His plain narrative is full of dry humour over the long-drawn-out preliminaries, the debates on methods of procedure and questions of precedence; it ill conceals his contempt for the ambition which he thought to be at the root of these prolonged negotiations. In 1619 he withdrew to Eton College where he held a fellowship. He died in 1656.

Hales's chief work was his *Tract on Schism*. In it he shows that most quarrels, schisms and dissensions in church have arisen over things of no importance in themselves, and that, had it not been for contentious and ambitious men stirring up strife, they never would have arisen. About 1640 when the tract was written, Archbishop Laud was endeavouring to make the forms of worship and the doctrines of the Church of England uniform as they had never been before. The use of the Prayer Book, a belief in Arminius's doctrine concerning eternal salvation, the placing of the communion-table altarwise, the wearing of surplices, the beautifying of churches by carvings and stained-glass windows—these and many other like things he commanded in imperious decrees. To get them carried out he smothered opposition, silencing questioning friends within his own palace walls by a sharp voice and a haughty bearing, in the city forbidding the licensing of books written against them, and putting down the Puritan 'lecturers' in the churches. Fortunately, many Englishmen, many Royalists even, did not see eye to eye with the well-intentioned visionary. John Hales was their spokesman. His *Tract on Schism* pleads for freedom in thinking about all matters of opinion in religion and about all matters of fact also, except the few which even 'a dull, silly and unlettered one' knows to be essential to salvation.

Heresy and Schism, he starts off by saying, are just bogeys to frighten men into uniformity, 'theological Mormôs or Scarecrows which they who uphold a party in Religion use to frighten away such as oppose it.' Real Schism seldom occurs: what is called Schism being but a difference of opinion if it does not result in the making of a bishop or the setting up of a pulpit. And even in this case, he boldly declares, even when one part of the church has broken completely away, the division cannot be a vital one, for it is bound to have taken place over matters of no importance. About the essentials of Christian faith as set down in the New Testament and in the Apostles' Creed there can be no hesitancy. To Hales all schisms seemed as trivial and foolish, as that which took place after the great debate about the keeping of Easter. He thus humorously described it: 'It being upon error taken for necessary that an Easter must be kept; and upon worse than an error (for it was no less than a point of Judaism forced upon the Church)—there arose a stout question whether we

were to celebrate with the Jews on the fourteenth moon or the Sunday following? This matter though most unnecessary, most vain, yet caused as great a Combustion as ever was in the Church; the West separating and refusing Communion with the East for many years together.'

Why do men make so much of this bogey of schism? Why do they struggle so desperately over things which do not matter? Hales answers in characteristic fashion in sentences which have a breath of humour and a fragrant scent of poetry about them. 'Old men', he says, 'line their speeches with may-bes and peradventures; but these flowers are seldom found in youth's garden.' The hotheads, the ambitious, the proud, the zealous, it is they who stir up all the dust of strife in the world. In religion there are naturally no feudal classes, no heraldry of *secundum*, *sub* and *supra*. But self-interest has called them into existence and made Christianity the lacquey of Episcopal ambition and ministerial zeal.

III.

In the writings of George Savile, Marquess of Halifax, are traces of opinions similar to those held by Montaigne and Hales. The nickname—'Trimmer'—given him by the Tory journalist, Sir Roger L'Estrange, and accepted by him as a compliment, is one sign of this. In an age eaten up by zeal, when in their fierce partisanship priest and politician could see no virtue in any doctrines but in those inscribed on their own banners, he chose a middle way. He trimmed the ship of state when, owing to the violence of over-daring pilots, it rocked dangerously. In 1680 when Parliament met, it heartily set about considering the Exclusion Bill. The House of Commons passed it with overwhelming majorities amidst the most extravagant enthusiasm. The Earl of Shaftesbury fathered it in the House of Lords where also feeling ran high in its favour. But there he was met by Halifax: Jotham stood up against Achitophel. It would be imprudent, he said, to make the Duke of York an enemy of the state, when he actually had Ireland and a great army ready to receive his commands. But he administered a rebuke to the hotheads of the other side also. He was as much afraid of James's bigotry as of Shaftesbury's and Monmouth's ambition. Therefore he proposed that James should be banished to a distance of 500 miles from England

for a period coextensive with the King's life. Each party was soaring too high in its frenzy of intolerance: he clipped the wings of both.

In one of the most striking passages in *The Character of a Trimmer* Halifax breaks out with a great Miltonic eulogium of Truth. 'All the Power upon Earth cannot extinguish her; she hath lived in all ages; and let the mistaken zeal of prevailing Authority christen any opposition to it with what name they please, she maketh it not only an ugly and unmannerly but a dangerous thing to persist.' Zeal, partisanship, intolerance are the enemies of Truth.

Halifax also resembles Montaigne in that he insists that it is only through a knowledge of the limitations and possibilities of human nature that a statesman can legislate and rule wisely. This idea permeates *The Character of a Trimmer*. In that work, for instance, he says that a Trimmer would not administer the laws against the dissenters in their extremest form, for that would simply harden them in their determination to resist. He would take into consideration the nature of the human beings he rules. He would try to prevail with the Church also not to exercise to the full its legal rights. 'A clear sky would make it look more like heaven and would do more to reclaiming these wanderers, than a perpetual terror which seemeth to have no intermission; for there is in many and particularly in *English Men*, a mistaken pleasure in resisting the dictates of Rigorous Authority; a stomach that riseth against a hard imposition, nay, in some, even a lust in suffering from a wrong point of Honour, which doth not want the applause, from the greater part of Mankind, who have not learnt to distinguish; constancy will be thought a virtue even where it is a mistake.'

IV.

Let us imagine a man, living at the end of the seventeenth century and holding all the ideas of Montaigne, Halifax and Hales which I have outlined, to make a confession of his faith with regard to political and religious troubles. He would set it out, I think, under three articles.

1. I believe that the religious and political troubles of my time have sprung from that weed of intolerance which

grows so rank in, and finds such rare sustenance from, minds inflamed by ambition.

2. I believe that if the garden of the mind be thoroughly delved, it can be cleansed of this tare; if a man come to know himself adequately he will no more be intolerant.

3. I believe that solitude is the temperature in which this change can best take place.

This imaginary confessor is certainly not Swift. Swift must have read Montaigne; Halifax he probably met and conversed with at Moor Park; and if he did not know Hales, which is improbable, he knew the spirit of the man through the writings of Andrew Marvell. But he did not give his assent to all their teachings. Swift, who spent so many years of his life hobnobbing with ministers, who retired with such bad grace into the wilderness, a lover of Solitude! Swift, the writer of *The Examiner*, *The Conduct of the Allies*, *The Drapier's Letters* a tolerant man! It seems absurd even to suggest such things. Nevertheless at some points Swift resembled our confessor. He was ambitious, but his ambition never shut out of his mind a sense of justice, or made him so eager to climb that he trod down others. While he never hid from himself his towering desires, he laid them aside daily to do acts of common humanity; because of which, Swift, though in his raging bitter moments he wrote books full of blasphemous condemnations of the human race, has never been set down in general estimation as its enemy. Then, too, he was not blind to the effects of his most furious fits. Like our confessor he was self-critical, as the *Journal to Stella* and that table of rules he drew up in youth for his guidance in old age, witness. To know the truth about himself he tore away in his eagerness not only the wrappings of illusion from his mind, but also the skin and the flesh. Montaigne, who worked at times, one imagines, with a somewhat self-satisfied air, did not push his lancet deeper than he. But most of all Swift resembles our confessor in his condemnation of war. It was for sheer amusement, he says, that Louis XIV of France burned, laid waste, plundered, dragooned, massacred. It was for no profound moral or political cause but to satisfy an illicit passion that Henry IV towards the end of his reign raised so mighty an army and provided so invincible a fleet that all the

nations of the world trembled with alarm. Each suffered from a distemper: the mind of the one was clouded with the fumes of bestial desire, and that of the other by the heady vapours of high animal spirits; so both shook the world. For matters of even less worth, if that be possible, for differences of opinion on things indifferent millions of lives have been lost in war; for a difference of opinion as to whether flesh be bread or bread be flesh; whether the juice of a berry be blood or wine; whether whistling be a vice or virtue; whether it be better to kiss a post or throw it into the fire; what is the best colour for a coat, whether black, white, red or gray; and whether it should be long or short, narrow or wide, dirty or clean. This is Hales's doctrine sharpened to a murderous point and dipped in poison. The meditations on Henry IV and Louis XIV might be Montaigne's.

Literary movements have often been compared to a river which, as it pursues its course, receives many affluents and gathers strength and power, or to a little army which as it advances, through the gradual inpouring of reinforcements, becomes a mighty and irresistible host. But there is a certain falsehood in such comparisons; for they leave out of consideration the infinite amount of changing and regrouping, of losing and gaining, which is continually going on in any movement of the mind. It may be that at times I have fallen a victim to this error, and, against my better judgment complacently following the critical fashion of the age, striven to show the influence of Montaigne increasing till it culminated in Swift. If I have done so, let me strike out against it now. Hales is no mere tributary of the great Montaigne nor are any of the others. Swift is as far distant from him as is a bleak, old, excoriated, northern volcano from the wooded hills and debonair skies of the South. Still they have points of contact. On the first article of our confessor's creed, the central stone and foundation of it, they all unite—that the wars and religious troubles of the sixteenth and seventeenth centuries were due to the petty ambitions and wicked self-interest of princes, priests and statesmen.

By some critics Swift has been set down as a moral leper for his attacks on religion, and as a madman for his railings at governments and politicians. Their criticism is unjustified. In the main his attitude to politics and religion was that of a whole tribe of seventeenth century writers who stimulated the

growth of toleration in England. They did not put an end to war. But they created a feeling that war is a ghastly business for which no nation dare claim divine sanction. We no longer put to death all those taken in battle nor openly declare that it was by the blessing of God and His marvellous great mercy that we were permitted to do so. Gulliver told the Houyhnhnms as an instance of his dear countrymen's valour that he had seen them blow up a hundred enemies at once in a siege, and as many in a ship, and beheld the dead bodies come down in pieces from the clouds to the great diversion of the spectators. When we read an account of such an exploit in the present war, in the natural simplicity and honesty of our feelings, our jubilation is very like Gulliver's. But when the first burst of joy is over and we reflect on it, we do not pray, * "Thanks be to thee God Almighty! thy wrathful awakening does away with our sins. As the iron in thy hand we smite all our enemies on the cheekbone." In this one respect at least the English hypocrites are nearer heaven than the German saints. If our enemies had had a few Swifts and Halifaxes among them they also would be beyond the Jael state of Kultur.

Could we visit the isle of Glubbdubrib and have the honour to call up the spectres of Montaigne, Hales and Swift—Halifax we would call in vain, for with renewed might,

With Atlantean shoulders fit to bear
The weight of mightiest monarchies,

he has come to life again and now animates the greatest of those sprung from his own Yorkshire soil—and if we conversed with these three, what would we be likely to learn regarding their attitude to the present war? Montaigne, I imagine, would say that he was on the side of his own country because the gross beer-drinking habits of its enemies disgusted him.† He might find himself unable to decide between the contestants on grounds of reason, and he might wish that each had politely stated its claims to the other and been content to sit quietly in his *arrière-boutique* till time had brought about

*From a hymn by a German religious poet quoted by Professor Gilbert Murray in *Herd-Instinct and the War*, *Atlantic Monthly*, June, 1915.

†Vide *De l'Yvrongerie*.

some silent revolution of opinion or the moss of oblivion had overgrown claim and claimant. From the retiring and humble Hales it would be difficult to get an answer. One can think of him living now as he did in the Civil War, filling his days with pious and holy deeds, debarring himself from all 'commensations and computations' and selling even his library to give to the poor.

Swift, with his long gaunt form and white set face and eyes staring fixedly ahead, as he was last seen in life—what would he have answered? There is far more concentrated fury in him than in any of the others. He pours steadily a thin hard stream of burning acid on the pretensions of men to make war, till they are consumed flesh, blood, bone and marrow. Looking at the great conflagration I think he would slowly repeat his own terrible words: 'When a creature pretending to reason can be capable of such enormities I dread lest the corruption of this faculty may be worse than brutality itself. I am confident that instead of reason men are only possessed of some quality fitted to increase their natural vices; as the reflection of a hidden stream returns the image of an ill-shapen body, not only larger but more distorted.' But looking towards his own country and observing how her peace had been violated by an armed man, he would be transformed; the gloomy lethargy of his paralysis would pass away; he would become vigorous and full of spirit as he was when ministers called him 'Jonathan'; and cry: 'Tear up my old *Conduct of the Allies*. Write it anew, urging War not Peace. An ugly-jowled Yahoo has clubbed us in the dark.'

W. D. TAYLOR.

WAR AND POLITICAL ASSOCIATION.^a

IN taking for my subject the second part of the prescribed general theme, namely, "Possibilities of international co-operation in avoiding occasions for war," I assume that the word *occasions* is to be understood as meaning *causes*, for, if it is to be taken in its usual sense as contradistinguished from causes, all that could be said upon the subject is that there is no possibility of international co-operation in avoiding occasions for war. International action could not have prevented the blowing-up of the *Maine*, even if it could have avoided the predisposing causes of the Spanish-American war; nor could it have prevented the assassination of Franz Ferdinand, even if it could have avoided the causes of the present war. Whether international co-operation can avoid or help to avoid *causes* rather than *occasions* of war, and, if so, by what means, are the points to which I invite your attention. And I exclude from consideration all schemes relating to settlement of disputes, whether by judges or arbitrators, for my subject is not the settlement of disputes but the possibility of avoiding them—prophylaxis and not remedial action.

Although the causes which we wish to avoid are many, they may, for the purposes of a short paper, be reduced (if we omit wars of personal ambition) to one, namely, reasonable dissatisfaction with existing conditions. The requisite for social tranquility is that men are satisfied with, or at least that they unreservedly accept, existing conditions (inclusive of conceptions of right) with reference to what they are, and what they possess; and the same rule applies to international relations. Grounds of social discontent are, from time to time, removed by corporate action. And what we have to ascertain is whether international co-operation can internationally perform the same function.

History supplies us with very little upon which to found hope of favorable reply. We run over the wars of the past in order to ascertain whether their causes could have been

^a This article is a reproduction of an address recently delivered at The Lake Mohonk Peace Conference.

avoided by international co-operation, and we are met with the preliminary difficulty of discovering and defining their respective causes. Indeed, lapse of time appears to prove that those circumstances which at the moment appeared to be causes, were, in reality, nothing but occasions for outbursts due to the secular operation of causes of a developmental character.

The Thirty Years War (1618-48), for example, we are told, commenced with rival claims to the throne of Bohemia, but

"was primarily a religious war, and . . . at the same time, political and feudal quarrels were interwoven with the religious question."^a

Nobody can yet separate these factors or adequately define them. And any one who looks at the map as settled by the treaty of peace (Westphalia, 1648) can now very easily see that its arrangements provided no security for the permanence of peace. It did not establish conditions with which the nations could be satisfied.

Wars which appear to have commenced with the loss of Jenkins' ear, and a dispute about the succession to the throne of Austria, are now described by Professor Seeley (a most competent historian) in this way:

"I point out now that the great triple war of the middle of that century (the eighteenth) is neither more nor less than the great decisive duel between England and France for the possession of the New World. It was perhaps scarcely perceived at the time, as it has been seldom remarked since; but the explanation of that second Hundred Years' War between England and France which fills the eighteenth century is this, that they were rival candidates for the possession of the New World, and the triple war which fills the middle of the century is, as it were, the decisive campaign in that great world-struggle."

"In the earlier wars of William III. and of Anne other causes are more, or certainly not less, operative, for the New World quarrel is not yet at its height."

It would be difficult to suggest any way in which international co-operation could have avoided the cause of the wars of foreign empire, at a time when the cause itself was undiscovered.

^a Ency. Brit. vol. 26, p. 852.

Coming to later periods, the Crimean war (1854-6) may be attributed to the fact that

"The vast Power which frowns over Eastern Europe has only a difficult and imperfect access to the ocean, the common highway of mankind."^a

The squabbles about the cupola of the Church of the Holy Sepulchre, the silver star on the Holy Stable, the key of the chief door of the Church of Bethlehem, and, those being settled, the protectorate of Greek Christians in Turkey, were but occasions for Russian rebellion against unsatisfactory conditions. International co-operation did its best to keep the peace but, although it nearly composed the squabbles, it could not eradicate Russia's dissatisfaction; and the treaty of peace

"did not permanently arrest the irresistible advance of Russia; it merely set back the clock for some fourteen years."^a

The Italian war against Austria in 1859, and Italian assistance to Prussia against Austria in 1866, were avowedly based upon Italian dissatisfaction with the existence of Austrian control, in what Italians regarded as Italian territory.

Dissatisfaction of Prussia was the cause of the Schleswig-Holstein war of 1864, and Bismarck has told us that

"From the very beginning, I kept annexation steadily before my eyes"^b

The Austro-Prussian war of 1866 was due to Prussia's dissatisfaction with her position—both geographical and political. And the Franco-Prussian war of 1870 was welcomed, if not caused, by Prussia, as a means of uniting the German states.

Further specification is unnecessary, and probably no one will dispute the statement that international co-operation for the purpose of avoiding causes of war, really means co-operation for the purpose of changing conditions in such manner that they shall become reasonably satisfactory to the nations interested. In his *Reflections and Reminiscences*, Bismarck, referring to the year 1886, said:

^a Walpole: *Hist. of Eng.*, vol. VI, p. 1.

^a Ibid, p. 65.

^b *Reflections and Reminiscences*, vol. II, p. 10.

"Eternal peace with the Roman Curia is, in the existing state of affairs, as impossible as is peace between France and her neighbors." *

"The existing state of affairs"—that was, and is, the European difficulty. Can international co-operation improve it?

Dissatisfaction exists with reference both to European and non-European conditions. In Europe, three countries, Italy, Servia and Montenegro make huge claims against Austria; Austria-Hungary asserts the necessity of dominating Servia; Roumania seeks union with her race, at the expense of Austria-Hungary and Russia; Bulgaria insists upon reversion to the treaty of Bucharest at the expense of Servia, Greece and Turkey; Russia is pursuing her traditionary march to the sea; Finland seeks her independence, and Poland her resurrection; Denmark and France want restitution from Germany; Italy has not forgotten Savoy, Nice and Tunis; and the aspirations of Greece, Montenegro, Persia and Armenia must not be forgotten.

Were all these conflicting claims satisfactorily adjusted, there would still remain dissatisfaction with oversea conditions, with regard to which a basis for finality is still more difficult to find. I must not be taken as asserting that laws regulative of contentions must be formulated prior to the establishment of tribunals to deal with them. But I may safely assert that there can be no practical co-operation, and no judicial tribunal, in the absence of some generally accepted view upon fundamentals. For example, at the Lake Mohonk Conference of 1914, Rear Admiral Chadwick, after referring to the partition of Africa during the last thirty years, said:

"I think it also may be laid down as axiomatic that no stronger country has a right to fence in such regions, which in a way are the world's commons, as their own special commercial reserves. Were the United States, China, Japan, and I think I may add Russia, Sweden, Denmark, Holland, and Austria, consulted in the partition of Africa? Was any country outside their own conspiracy (for it was a conspiracy) considered by England, France and Spain in the question of Morocco? Can the inherent right of every country to go and trade in such regions on equal terms be taken away by such conspiracies, or by any other international arrangements in which all the countries have not a voice? I say, No."

Whether that conclusion be right or wrong, I do not stop to argue. All that I desire to say is that there is no generally accepted principle of law or ethics applicable to the solution of the question. Nor has any one as yet successfully formulated the rights associated with the suzerainties, the spheres and other webs of influence in which the speedier spiders have entangled the helpless flies. For such cases *are* there any rules but those of the primeval forest? Has one hunter a right to cut in upon the chase of another? Would interference in the present Persian process, for example, be unfriendly? How can such causes of dispute be avoided?

For the re-arrangement of European territorial boundaries, no one would suggest, in time of peace, the summoning of an international conference. Everybody recognizes that until such changes are made as will produce reasonable satisfaction among the nations, causes of war—the principal causes of war—will remain. But no nation will willingly surrender what it has, and no nation would enter a conference charged with the duty of investigating titles and settling proprietorships. Schleswig and Holstein; Alsace and Lorraine; Trieste and Trentino; Bosnia and Herzegovina; Transylvania and Bukowina; Adrianople and Salonika; Poland and Finland will not be dealt with by plenipotentiaries during any period of peace.

Questions relating to oversea interests are of two kinds—in legal phraseology they may be called corporeal and incorporeal. So far as European ownership of foreign territory is concerned, I see as little scope for international co-operation in avoiding causes of war as in connection with alleged wrongful ownerships in Europe. Whether Rear-Admiral Chadwick be right or wrong, the nations who have enclosed the commons will not willingly level the fences. Upon the other hand, an international conference might well endeavor to formulate some rules for international observation, with reference not only to future acquisitions, but also to the rights which ought to exist in cases of suzerainties, protectorates, and spheres of influence. Personally, however, I do not anticipate the convocation of such a conference. The Have-nots would like it, but the Haves would not consent. They have not as yet sufficiently completed their exploitations.

Upon the whole, then, we are compelled to say that the world is not ready to agree to the removal of those causes of

international dispute which usually lead to war. And I have chosen, perhaps ungraciously, to sketch the difficulties which peace conferences must face, rather than to join either in platitudinary expositions of the value of peace, or in condemnation of the frame of mind which European antagonisms inevitably produce. Not long ago at one of the conferences it was said:

"When international conferences meet to discuss general treaties and conventions, they are still dominated by the spirit of diplomatic rivalry. There is a balancing of nation against nation. There is a certain apprehension and fear of general rules."^a

That is perfectly true, but the reason is that general rules, if enforceable and enforced, would not only condemn too much of everybody's past,^b but would make the existing situation unchangeable; and nobody in Europe is quite satisfied that it should remain as it is. Many would protest their perfect satisfaction, but they are all looking forward—all, from the one who has the most and wants more, to those who have lost the most and want it back again, with a little addition by way of compensatory emolument.

Affirming, as I do, that the pre-requisite of peace is satisfaction with, or, at all events, unreserved acquiescence in, existing conditions, I admit no exception in the case of popularly governed communities, and I take issue with the statement (made at a recent peace conference) to the effect that

"a popular government must necessarily stand on the side of the rule of law. Any other position would be self-negative. Force in such a system can be applied only in the support of law."^c

The principal criticism of popular government is not its dishonesty, but its ignorance, and its bias. Of all the millions

^a Proceedings of the Am. Socy. for Judicial Settlement of International Disputes, 1912,, p. 101.

^b The United States would share in the condemnation. See an article by Brig. Gen. Crozier in the North American Review, June, 1914, p. 857; and an article by Capt. Mahan in the North American Review, July, 1911, p. 124.

^c Proceedings of The Am. Soc. for the Judicial Settlement of International Disputes, 1912, p. 95.

now engaged in war, I think it probable that not two per cent. could give a fair account of its causes. Without knowledge of the politics and diplomacies as far back (at least) as the date of the San Stefano treaty, nobody can make such a statement; and the most hopeless features of proposals for democratic solution of international disputes are (1) the impossibility that the crowd should ever have such knowledge; (2) the impossibility of freedom of the crowd from over-powering national and racial bias; and (3) the susceptibility of the crowd to national and racial appeal. For my part, I would trust rather the British government than the British people, and President Wilson rather than the best of democratic mobs.

And is there, then, no relief or prospect of relief for Europe? Allow me to lead your thought in another direction. Throughout the Roman Empire there reigned the *pax Romana*. Throughout the United States there reigns the *pax Americana*. And throughout the British Empire there reigns the *pax Britannica*. There is internal peace, too, throughout Russia, Germany, France, Austria-Hungary, China and Japan. In the eleven most populous states of the world there are about fourteen hundred out of the total of seventeen hundred millions of people, and within the boundaries of each of these vast areas there is (I speak, of course, very generally) the best security for peace, namely, satisfaction with existing conditions. Look back, now, at, say, Germany in 1814, and you will find a perfect welter of hundreds of kingdoms, principalities and other trumperry dukeries and knightdoms, all dangerous to one another and incitements to foreign invasion. Look back at Italy and her quarrelsome city-states. Look where you like and you will find proof of the fact that political incorporation means internal peace. It means peace in the sense that political incorporation cannot exist (save in the rare case of rebellion) in the absence of peace; and in this sense also that, by the reduction of several conflicting international interests to one interest, the only remaining occasions for quarrel are those which may be disposed of by courts of law. In other words, political incorporation produces within the territory of the state, the establishment of that satisfaction with existing conditions which is the prime pre-requisite of the continuation of peace. And, in thus operating, it reduces not only the number of causes of war within the territory of the union, but the chances also of embroiling other peoples in the quarrels.

The political incorporation of which I have been speaking includes unitary states, federations, and empire-states; but even such looser unions (Austria-Hungary, for example) as are more properly denominated confederations, either provide (as in the Germanic Union of 1815) some method of settling inter-state disputes, or, at the least, produce a sympathetic attitude in which disputes are apt to dissolve and disappear.^a Peace between Austria and Hungary, for example, during the last forty-eight years would probably have been impossible had they not formed a confederation in 1867.

The two theses of this paper may now be stated. They are (1) that the pre-requisite for the maintenance of peace is satisfaction with, or at the least unreserved acquiescence in, existing relations, and (2) that the establishment of comprehensive federations, or even confederations, is, not only a strong guarantee for the cessation of war within the united territory, but a reduction in the number of causes of war among other nations. And I desire to point out that if these assertions are true, then the line of international co-operation in avoiding causes of war becomes apparent.

Substantial rearrangement of the map is not, as I have said, possible during periods of peace. War has effected many changes in it, and on some occasions, either because of the number of nations involved, or because of the intervention of other states, the settlement has been the work of what might be called international co-operation. The treaties of Westphalia in 1648, of Utrecht in 1713, of Vienna in 1815, and of Berlin in 1878 were of this character; and another opportunity for similar co-operation is about to present itself. Of the suggested arrangements then to be made, in the event of the defeat of Germany and her allies, let me refer to three:

First, there is the proposal that the United Kingdom, France, Russia and Italy, in permanent union, should regulate themselves and the rest of Europe. Only those unfamiliar with history and human nature can imagine that such an union would survive a decade, and I pass the proposal with the remark that it is one for the *suppression* of causes of war, and for that reason has no relation to my present subject.

^a The various Confederations of ancient Greece secured, to a large extent, temporary peace between otherwise warring cities. See Freeman: *Hist. of Fed. Govt.*

Secondly. Some people contemplate an international police, acting under the direction of an international committee or an international court. But as that means the obliteration of separate national forces and promised submission to outside authority, the suggestion remains impracticable until the United Kingdom can be induced to destroy her fleet, until the United States can be induced to promise to conform to European and Asiatic requirements, and until some mutual confidence in the rectitude of those who never have provided any very good reason for such confidence has been created. Moreover, that proposal, too, is not within the purview of the present paper.

Thirdly. The only suggestion which has in it the possibility of avoiding, or reducing the number of causes of war is that, at the close of the war, such re-arrangements shall be made as shall supply the greatest probability of their permanent acceptance as fair and reasonable.

What those rearrangements ought to be, I do not know. Probably no man knows. They can be ascertained only after consultation between men with large and accurate information as to present conditions. The problem is most complex, and an approximation to the best solution is all that can be expected. But the broad principles of procedure are very clear, namely, (1) that territorial adjustments must be based upon the will of the peoples particularly interested; (2) that reduction in the number of states—combination of several in one—produces peace within the united territory and, for that reason, reduces the causes of wider conflagrations; and (3) that the federal system provides a method by which unassimilable peoples can be joined together in happy union.

From the international conference which shall, at the close of the present war, arrange the terms of peace, we have a right to expect that it will take warning from the failure of previous conferences. For we can now see the futility of endeavors to impose, upon sovereign peoples, the limitation of the exercise of sovereign rights. We now understand that the forcible annexation of the territory of antagonistic populations breeds lasting hatred and eventual revenge. We now know that peoples and lands do not belong to kings, and that the validity of dynastic claims is not the ground upon which unions and separations can be justified. We believe that only upon principles of justice and righteousness can either per-

sonal or international relationships be safely and satisfactorily settled. And, for the sake of the world's future peace, we must hope that the coming conference will give us such terms of settlement as will offer the best assurance of eventual acceptance by the now warring nations of Europe.

My reason for the omission of all reference to the Americas is probably sufficiently obvious. In Europe, the conditions out of which wars may arise may be described as territorial, racial, commercial, hegemonic, and dynastic. Of these, only one exists in the Americas, namely, the racial, and that, when uninflamed by others, is comparatively innocuous. If my subject had been the adjustment of difficulties, I should necessarily have had to consider the hemisphere in which we live, but, fortunately for us, we are all sufficiently satisfied with our existing international relationships. No dynastic rivalries disturb us. No commercial antagonisms breed enclosures of the world's commons. No state claims, or covets, territory in the possession of any other state. The conditions are such as make debateable the practicability of a league of peace.

In Europe it is far otherwise, and many decades, if not generations, must pass before it will be worth while suggesting to the United Kingdom that she should depend for her security upon a league or treaty—upon “a scrap of paper”—as sufficient substitution for the British navy. When the normal condition of Europe is one of general satisfaction with existing conditions, when the nations have learned to trust one another, and when, through long experience, they have become well assured that in an international council will always be found reasonableness and unselfishness, then, and not till then, will the United Kingdom be disposed to consider such proposals as have been suggested at the present conference.

JOHN S. EWART.

EDUCATIONAL INSURGENCY.*

THE title of the present address implies an assumption which most of its hearers will, I fancy, be willing to grant, viz., that there is both in the professional and in the popular mind more or less of dissatisfaction with present-day educational conditions. My reason for choosing this topic is not, however, because I am ambitious to pose as a revolutionary, nor because I think that matters are in a very bad way indeed, but because I wish to consider the element of truth to be found in certain criticisms which have been offered within the past few years upon teachers as a class, upon the methods which they employ, and upon the product which they turn out.

Nowadays nearly every one who reads at all reads the daily papers and the popular magazines and so I may illustrate the unrest which I have in mind by calling attention to certain items and articles with which most of you are already familiar.

This unfavorable comment upon our Public Schools generally begins with disparaging reference to the morals, the manners, and the intelligence of the rising generation. A former Governor-General of Canada is reported to have remarked more than once that Canadian children are lamentably deficient in good manners, and not very long ago a well-known English dramatic critic remarked to a Canadian audience that the English schools, and especially the English Public Schools, inculcate a radically wrong attitude towards life—they tend, he says (though not in so many words), to produce a race of idlers and snobs. A somewhat similar charge is brought against our Ontario schools in the oft-repeated statement that our rural schools have been estranging their pupils from the farm and farm life; and I can remember at least one criticism which placed the blame directly upon those lady teachers whose city dress and city ways awaken in the minds of the too susceptible youths of their neighborhoods a profound dissatisfaction with the simpler and more wholesome life of the countryside.

*An address delivered before the East Elgin Teachers' Institute.

Sometimes the critics train their guns upon the organization and methods of our schools. One of the most widely read of American magazines published a year or so ago a series of articles dealing with the defects of the Public Schools of the United States. One of these articles, written by the President of a Western Normal School, is entitled, "Are we living B.C. or A.D.?" and enumerates the shortcomings of a number of Normal School students who, it appears, knew a good deal about Julius Caesar and Brutus and Cassius but very little about such men as Bryan and La Follette and Gifford Pinchot. The author of another of these articles is a well-known headmaster in the New York city schools. "Are we running a fool-factory in our Public Schools?" he asks in the heading of his article, and he seeks to deduce an answer in the affirmative by showing how, in the working of arithmetic problems, for instance, the pupils do not seek to understand what the problems mean but set to work in a blind sort of way to add and subtract, multiply, and divide, with the hope that the answer may turn out to be the correct one.

I read not very long ago a book entitled "New Demands in Education," written by a very intelligent citizen of Boston—an ex-president of the National Society for the Promotion of Industrial Education. The book is essentially a plea for a wider use in our Public Schools of the vocational motive and the vocational aim. The titles of two of the chapters will illustrate sufficiently the sweeping condemnation with which he visits the educational institutions of his time and country. These titles are, "The grievance of the average boy against the average school," and "How the colleges run the High Schools."

While frequently in these hostile criticisms the teacher is regarded as a victim of circumstances, bound hand and foot by school boards, school superintendents and school regulations, an occasional voice is raised in emphatic condemnation of the teacher as an individual, as witness this paragraph from the pen of an English writer:

Education has failed; we have to admit it. Not without reason has the schoolmaster been the scoff of modern novelists. Sinned against by society he may have been; but he has sinned in return. He has refused to learn. His bigotry has sometimes been more stupid and more impenetrable than that of the priest.

He has in too many cases remained with the outlook of a mole, the interest of an ox, the initiative of an oyster, the enthusiasm of a jelly-fish, and the hide of a rhinoceros. "He is content to practise an art the principles of which he does not understand, and he haughtily resents any attempt to enlighten him." "He is an arrogant and intolerant empiric." Scarcely an eddy in the onward movement of progressive thought has swept into his narrow domain. He has had interest in nothing, not even in his own work. He has combined the culture of a bucolic boor with the arrogance of a newly-fledged ritualistic curate.

If we sum up the constructive features of that mass of newspaper paragraphs, magazine articles, and books, which makes up what I may call the present-day literature of educational insurgency, we find the following suggestions and demands (I mention them without any particular reference to their order of importance) :

1. A demand for a greater emphasis upon what our course of study calls "training in manners and morals."

2. A demand for a recognition of the claims of the farm, of the household, of the shop and factory, as ranking with the claims of the so-called 'learned professions.' This has meant a very persistent and enthusiastic advocacy of such subjects as domestic science, manual training, and agriculture, and (as a rule) a concurrent disparagement of certain of the time-honored subjects of the curriculum.

3. A plea for a lessening of the emphasis upon 'rote memory' in our teaching and for a reasonable use and development of the 'thinking' and investigating powers of children.

4. A demand for a widening of personal culture, a strengthening of personal equipment and a deepening of personal responsibility on the part of the teacher.

I should like to offer a few remarks upon the foregoing and I must preface what I have to say by the assurance that I have the profoundest sympathy with the spirit which underlies these suggested reforms because, after all, they represent the sum of what such educational prophets as Rousseau and Pestalozzi and Froebel and Herbart and Herbert Spencer and Matthew Arnold have been calling for for the last one hundred years. Yet, I am compelled to take issue with what some of

these reformers have to say about present educational conditions and with many of the claims which are made as to the astonishing potency of certain suggested remedies for our educational evils.

I think we will all agree that the ultimate aim of all education is the development of sound individual, civic and national character—that the basis of the good state and the good community is the good man and the good woman. Of course we differ about certain of the minor elements of goodness and yet our points of agreement are far more numerous than our points of disagreement.

Now thoughtful men and women of the present day are coming to see that goodness (or morality, if you prefer the term) is not just a part of life, so that we can say that a considerable portion of a man's conduct has no moral significance whatever; it is the whole of the man's life in so far as that life is considered as having an influence actual or potential upon the welfare of others. There is the familiar case of the careless workman who was said to have broken the whole ten commandments with every stroke of his hammer. This statement is more than a mere epigram for it fixes our attention upon a truth (which after all is as old as the Sermon on the Mount) that all the precepts of the moral law hang together and that the spirit which actuates the apparently trivial details of our daily living determines in a perfectly final way whether we are good or bad, moral or immoral.

If we accept this truth, we are compelled to admit the further fact that instruction and training in morals and manners is an inseparable part of the whole school course. It is involved in every exercise and every lesson and it belongs to the school play-grounds just as much as it does to the school-room. There is the story of the negro boy who had been away from his home town for a year or more. On his return he was accosted by a white man of his acquaintance with the question, "Where have you been all this time, Sam?" "I'se been in the penitentiary, boss," was the reply. "And what did they send you there for?" "Stealin', boss." "And did they teach you to be an honest man in the penitentiary?" "They sure did, boss. They preached it to me every Sunday." "And what did you do during the week?" "Worked in the shoe shop, boss, nailing pasteboard soles onto shoes." This question may be a hackneyed one but both the average teacher and the average

citizen need to be more thoroughly convinced that formal instruction in temperance, in cleanliness, in personal purity, and in a dozen or more of the so-called virtues represents only one of the many influences which are needed to make the truly moral and virtuous person, and such instruction may be, and in fact is, almost wholly valueless unless it sums up in language which is comprehensible to the child, a thousand subtle influences which are woven into the whole fibre of the child's environment in the school and in the home.

And this brings us to another aspect of this very important problem. Is the teacher to carry the whole burden of this immensely difficult task of moralizing the coming generation?

Of course, such a solution of the question would have certain apparent advantages. It would enable mothers to give their whole attention to spotless floors and window curtains, to dress and social calls and five o'clock teas and bridge parties. The father could then think only of the store and the club and the chances of his political party in the next election, of fat cattle and thirty bushel to the acre crops of wheat. And the lawyer could patch up our business affairs and the doctor our physical ailments and be duly paid therefor, and the one great task which makes life worth living, which makes civilization possible, could be performed at an average daily cost of some few cents per head by a young man or young woman to whom we give, by way of material reward, about one-fifth of the income which falls to the lot of the ordinarily successful doctor or lawyer or man of business.

Believe me, I am not speaking in any fault-finding spirit, but I feel convinced that, while teachers may do and should do more in this regard, that while in the coming years they will do more, they will never be able to carry (and they would be foolish to attempt it) the enormous burden which some thoughtless people seem willing to place upon their shoulders.

I gladly turn for a moment from this note of protest to a note of optimism. Nothing to my mind has been more encouraging than the new gospel, which had been preached of late years, of the joint educational responsibility of the whole community. Groups of parents (too exclusively mothers so far, unfortunately) are seeking to co-operate with the teacher and are asking what they can do and should do in ensuring the moral welfare of their children. Doctors are realizing more than ever that their duty of keeping people well is just as

imperative as their duty of healing the sick and that no one can preach the moral law written on tables of the flesh so well as he who knows at first hand how open sin and secret vice mark their indelible impress on the bodies and the souls of men. The modern consulting room and the modern hospital teach more forcefully than any sermon the eternal truth that "no one can take fire in his bosom and not be burned, nor touch pitch and not be defiled therewith." And physicians are beginning to speak out about those moral truths which they find demonstrated in their daily professional experience. There can scarcely be more inspiring reading than the recent literature dealing with the work of the school dentist, the school nurse and the school doctor, because it convinces us of how much can be done when medical science takes its rightful place as a bulwark of social welfare.

A second important aspect of the present unrest in education takes the form of a demand for vocational instruction. The terms vocational instruction and vocational training are now quite generally used to designate those phases of school work which point directly towards a life calling. They direct our attention to a motive which has not been used and which in many cases is not now being used to the extent which its value warrants. It is quite true, I think, that many boys and girls in their teens manifest much more interest in their studies when those studies are seen to have a direct bearing on the industrial life about them and when their school pursuits fit in with the plans which have already begun to make for mature life.

We go too far, however, when we assume that 'this motive of a life career', as it has been called, appeals in any definite and sober fashion to the ordinary pupil in the Public School. It belongs chiefly to the upper forms of the High School and to the various schools leading to the special callings and professions. But every boy and girl has interests, and these interests are more or less connected with the life about them and sometimes these interests are in addition a prophecy of the vocation which the boy or the girl in question will eventually follow. With the Public School boy or girl, however, these vocational interests are exceedingly fluctuating and sometimes exceedingly fantastic, but they furnish nevertheless a valuable means for extending the pupils' knowledge of dif-

ferent industries, peoples, and countries. One of my own boyhood's ambitions was, I remember, to be an African explorer. It was prompted in the first place, I fancy, by a reading of Stanley's account of how he found David Livingstone. It was a genuine vocational impulse but any schoolmaster who would have treated it as a definite indication of my future calling would have been foolish indeed. It had, however, an educational value, since, under the transient inspiration, I learned a good deal of the geography of the Dark Continent. But the utilization of such boyish ambitions to deepen an interest in school studies is not vocational education in the genuine sense of the work. That belongs to a later period when the youth, having been assisted by the knowledge of various life pursuits which a good general education should give, settles upon the one which most appeals to him.

This period of decision is later with the Canadian youth than it is with the youth of certain European countries—Germany, for instance. If the Canadian household were like the German household and our social classes so rigidly fixed that we could be assured that the son would follow in the father's calling or would at least adopt some pursuit of the same social grade as that which his father occupied, then we could, with some show of reason, speak of vocational education, in this stricter sense of the word, in the Public Schools. But it is one of the disabilities as well as one of the glories of our 20th century democracy that no youth is tied by any social custom to the paternal or ancestral calling and that in consequence the school can never do anything more than help the youth to find himself. It cannot seize upon him and cast him into a mould which is not of his own choosing. We cannot adopt bodily the German or any other system. Were we to attempt it we would make very poor Germans and, what is worse, we would lose our priceless Canadian birthright of individual liberty.

There is a further phase of this question of which I must speak, though of necessity very briefly. The introduction of the so-called new subjects has led to certain grave difficulties in the matter of framing courses of study for our various classes of schools and of time-tables for individual teachers. I was forcibly reminded of this fact while listening a few years ago to a paper read before a certain Teachers' Institute. The speaker placed upon the blackboard a time-table for rural schools which provided for all the classes and all the subjects

of study. While he contemplated with pride the architectural completeness of his scheme, he reluctantly admitted that it did not seem to give to the teacher much time to turn around. My own silent comment was that it did not seem to give the teacher time for much else. He would be turning so rapidly from one subject to another and from one class to the next that in a very short time he would become a very fair imitation of a whirling dervish, continually spinning between heaven and earth until he sank in a heap from sheer exhaustion.

But these new subjects are not really new at all. In a very real sense there can no more be a new subject in the curriculum than there can be a new color in the rainbow. Nature Study and Agriculture, in so far as they are studies at all, are but new and interesting aspects of that old, old study of Geography, and if the chief result of their introduction as separate subjects in our course of study is to make a whirling dervish of the teacher, then we had better leave them out altogether and teach their essential content under the old name. The more thoughtful teachers of Manual Training do not regard their subject as a new subject worthy of ranking with Arithmetic and History and Geography and Literature: they regard it merely as a means of making these subjects more vital to the child, and, apart from this vitalizing function, Manual Training has, in their opinion, no place in our Public Schools. The Public School is no more a place for making carpenters than it is a place for making farmers or doctors or dry goods clerks. Its primary purpose is to place our boys and girls in possession of that part of our social inheritance for which such terms as Arithmetic and History and Geography and Language and Literature have always stood. I have little patience with the shallow thinking which regards certain of these studies as old clothes now sadly out of date, which should be discarded for brand new creations from the workshops of those theorists who see little in the past that is worthy of reverence and imitation and little in the present but the struggle of mankind for material wealth and material comfort. This wealth and comfort and the knowledge and skill which minister to them are but the foundation, rather they are but the soil on which the foundation rests, and the real man is the building itself with its many stories, its pillars and its frescoes and its carving and the light of heaven shining through its myriad

windows. We are all threatened by that vicious circle of materialism, illustrated by the farmer who planted more corn that he might raise more hogs, that he might get more money to buy more land to plant more corn to raise more hogs, etc., etc., and when you get to the end of the circle (if you ever do) you run a serious risk of having no more of a *man* than you had at the beginning.

I have said the foregoing not because of any fondness for rhetoric or because of any desire to oppose genuine progress, but because I believe most firmly that more than industrial efficiency we need at the present time in Canada a re-birth of moral ideals and because I feel that the saddest thing about many of our rural communities, for instance, is not that weeds grow by the roadside and in the fields (though that is deplorable enough, all will admit), but that weeds grow in human minds—noxious growths of gossip and scandal and petty thoughts and petty jealousies and low ambitions, and where shall we find a better means for preparation of the moral soil and for the sowing of the seed for the moral harvest than in the Public Schools?

And what about the intellectual training of our scholars? Do we place an embargo upon thinking as some of our critics declare? Are we to regard the following instances (both taken from recent articles) as typical? Instance I.—A visitor goes before a class in one of the upper forms of a Public School and propounds the following question: "If a horse weighs 1,200 pounds standing on three legs, how much will he weigh standing on four legs?" The pupils look bewildered for a moment then seize their pencils, divide by three, multiply by four and produce the answer, 1600 pounds. Instance II.—A primary teacher is telling of the troubles she has had with a class just promoted from the Kindergarten. "They all asked so many questions when they came to me first," she remarks, "but," she adds triumphantly, "I soon put a stop to all that." Now I know every teacher here will reply indignantly, "These critics had grievances at the outset and they found what they were looking for, as fault-finding people usually do." Well, I am inclined to agree with your answer in the main. I know at any rate the trend of educational theory and endeavor has for many years been against such practices as are illustrated in the instances quoted and that the progress of reform would

be much more rapid if all of us could feel that we had just a little more command of our time and our material than we have now and if we could shake ourselves entirely free from those old practices and old traditions which still haunt so many of our school rooms like unlaid ghosts.

And then the teacher himself: shall we place him in our zoological collection along with the rhinoceros and the mole and the oyster as does our English critic? To be fair to this critic, I must remark that in subsequent paragraphs he modifies to a considerable degree the scope of his judgment and admits that there are many happy exceptions, men and women, who belong to the intellectual and moral aristocracy of the communities in which they reside. Then too we must note that he is speaking of conditions as he sees them in England and we must remember that in England perhaps more than elsewhere in Britain and certainly more than on this continent, the ordinary teacher has been denied professional status and the social recognition which professional status commands. Doubtless his "sinning" has been in no small degree the result of his being "sinned against."

There is no doubt, I believe, that the present generation of Public School teachers in Canada are much more deserving of public esteem than were their predecessors. The unfavorable criticism which we sometimes see in the public press and sometimes hear from the public platform arises in the main from an increased public consciousness of the possibilities of the school as an agency of social betterment. We are judged by what we may do and not by what we have already done.

Our most serious defect and our urgent need at the present time arises, in my opinion, from this very fact. We must adopt the attitude I have just described and judge ourselves by this high standard of the possibilities inherent in our calling. With all our efforts for increased scholarship, for a greater security of office, and for more adequate salaries, we must realize that without an intelligent enthusiasm for our work we lack the one great essential for professional success and for personal happiness. I regret that in my rather frequent and intimate associations with my fellow-teachers I do not find as much of this enthusiasm as one would desire or as much as, it seems to me, our present social conditions imperatively demand. More than once friends outside of the teaching

profession have remarked to me that the teachers of their acquaintance seem to be rather a "depressed" lot and I have been compelled to admit that this kindly-meant opinion is not without justification. But I have been careful to point out that perhaps these "depressed" teachers are like Martha of old cumbered with much serving and that most of them would, like Martha's more fortunate sister, choose "the better part" if they were given the opportunity. But this after all is only one aspect of the situation and it is not an aspect that teachers should dwell upon to the exclusion of the more hopeful one that the teaching body can through private and organized influence correct abuses and check autocracy, and can determine eventually both the conditions and the rewards of their work.

H. T. J. COLEMAN.

FEDERAL FINANCE.

"A pension list of ten or twenty millions a year will be one of the best things that could happen us. Like the pensions in the United States after the Civil War, it will make a high tariff certain sure for a generation to come."—A leading Canadian business man in a recent interview.

There are signs on many hands that the question of taxation is about to receive in Canada a measure of public attention such as has rarely, if ever, been accorded it. Special phases of taxation, tariff taxes and latterly land taxes, have, it is true, been widely discussed, but the whole question has received surprisingly little share of public interest.

One reason for this lack of interest is the persistence of the tradition that we are a lightly taxed people. In the pioneer days of Canada, settlers' letters and travellers' tales were full of references to the freedom of Canadians from taxation as compared with the people of the Old Country. This belief has remained long after it ceased to correspond to facts. Public men have spoken of 'our singularly light taxation.' Side by side with such expressions, we have countless references to the heavy burdens borne by our luckless brethren over seas. The weary Titan has been pictured as staggering under an appalling load of taxes imposed for military defence and social reform.

As a matter of plain fact, the average Canadian, of recent years, has been taxed much more heavily than the average resident of the United Kingdom. The following table, compiled from British and Canadian bluebooks,* gives a statement of the figures for 1912-13, the latest year for which there exist comparable statistics. Throughout, account is taken only of taxes in the strict sense of the term: receipts from state railway or post-office, which represent voluntary payments for special services, are not included for either country. No account is taken of any burden thrown on the taxpayer by the higher prices charged for protected goods manufactured in Canada: only the taxes paid into the Treasury are included.

*Chiefly the Statistical Abstract of the United Kingdom, the Canada Year Book, the Estimates and the Public Accounts of Canada.

COMPARATIVE PER CAPITA TAXATION, UNITED KINGDOM, UNITED STATES, CANADA. 1912-'13.

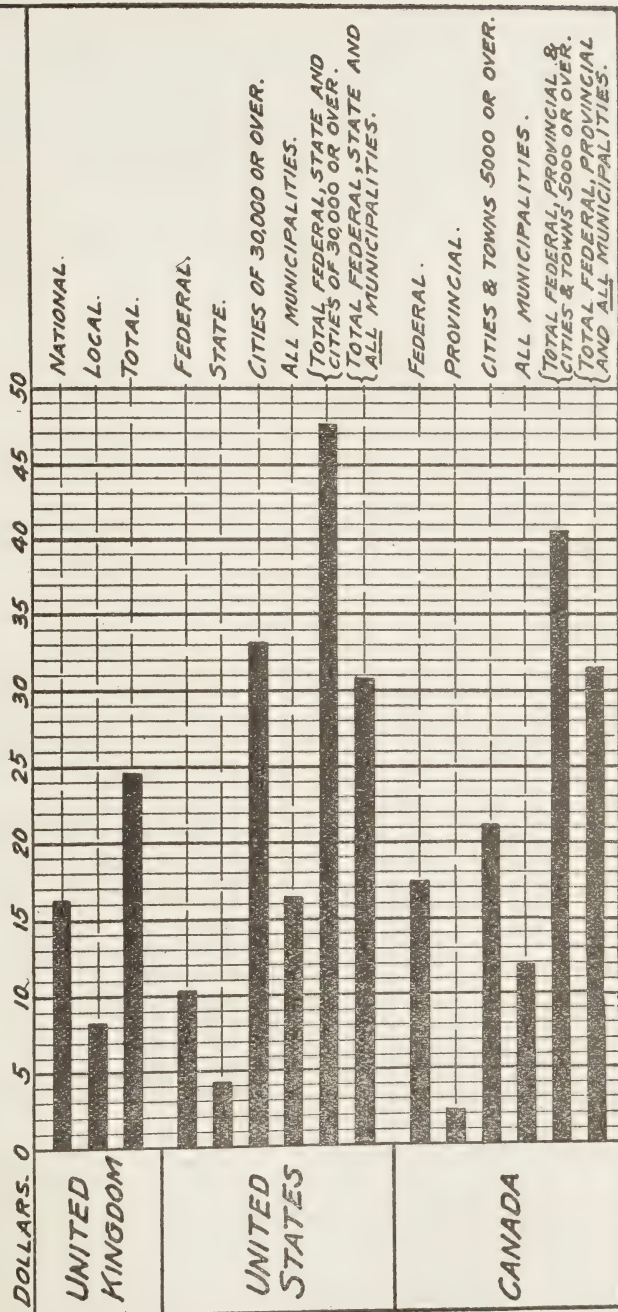


CHART I.

In the provincial figures the federal subsidies, which make up half the total revenue of the provinces, and the revenues from crown domains, are also excluded. No complete Canadian municipal statistics are available; the table gives, first, the average tax levied in all the cities and towns of five thousand or over, and, second, an average for all municipalities, computed on the assumption that municipalities of less than five thousand population levy only thirty-five per cent. as heavy taxes per head as the larger communities.

TABLE I.

The British Taxpayer's Burden.

1912-13.

Population=46,000,000.

Local Rates	£ 78,000,000
National Taxes	154,750,000

Total£232,750,000

Local Rates per head	= \$ 8.26
National Taxes per head	= 16.37

Total taxation per head = \$ 24.63

Total taxation per family = \$123.15

The Canadian Taxpayer's Burden.

1912-13.

Population=7,758,000.

Dominion Taxes	\$135,002,358
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Per head	\$17.40
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Provincial Taxes	17,000,000+
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Per head	\$ 2.20
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Total \$152,002,358

Dominion and provincial taxation per head = \$19.60

Municipal taxes in the 79 towns and cities

of 5,000 or over (total population,

2,495,000) = \$52,532,000

Average per head in these cities . . . = \$21.05

Average per head in all municipalities, assuming that smaller average 35% of larger = \$11.90

Total Dominion, provincial, and

larger municipalities = \$ 40.65 per head
or \$203.25 per family

Total Dominion, provincial, and all

municipalities = \$ 31.50 per head
or \$157.50 per family

The estimate of per capita taxation in the United States given below may be added for comparison. It was presented at the meeting of the National Tax Association in Denver, in September, 1914, by Dr. John Lee Coulter, Census Expert. It is a forecast of an investigation being carried on by the United States Census Bureau. The statistics are exact as regards the expenditures of the federal and state governments, and the cities of 30,000 or over, but only approximate as regards the expenditures of other urban and all rural municipalities. It presents some interesting parallels to the estimate given for Canada, as well as some interesting differences. The 97,000,000 people of the United States paid in taxes in 1913 approximately \$3,000,000,000—not quite the direct cost of the European war for six weeks.

The United States Taxpayer's Burden.

1913.

Federal expenditure per capita	\$ 10.35
State expenditure per capita	4.15
	<hr/>
Federal and state, total	\$ 14.50
Municipal expenditure in the 146 cities of	
30,000 or over	\$ 33.08
	<hr/>
Total for residents of these cities, federal,	
state, and municipal, per capita	\$47.58
Total for residents of these cities, per family,	237.90
Municipal expenditure, average for the whole	
country	\$ 16.40
Total U.S. federal, state, and municipal	
taxes per capita	\$ 30.90
Total U.S. per family	\$154.50

To estimate the relative seriousness of these burdens, it would be necessary to compare the average tax in each country with the average income. The average tax-bill in Japan is less than ours, but it takes perhaps forty per cent. of the average family's income. Unfortunately we have in Canada no basis for exact computation of income. The general consensus of opinion, however, is to the effect that, all things considered, the average of realized wealth and actual income is appreciably larger in the United Kingdom than in Canada—and this quite aside from the \$3,000,000,000 mortgage in the shape of

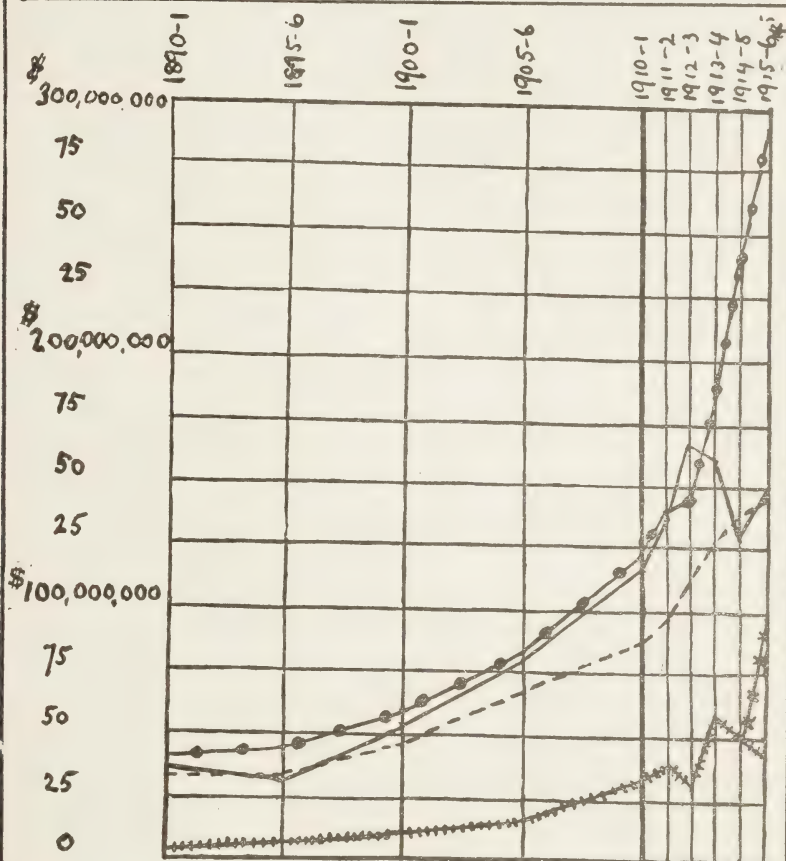
TABLE II.
Total Revenues and Expenditures, Dominion of Canada
1891-1916
(In millions of dollars).

	1890-1	1895-6	1900-1	1905-6	1910-11*	1911-12	1912-13	1913-14	1914-15†	1915-16†
Total Receipts . . .	38.5	36.6	52.5	80.1	117.7	136.7	168.6	163.1	130.0	150.0
Expendit're charge- able to Consolidat- ed Fund	36.3	36.9	46.8	67.2	87.7	98.1	112.0	127.3	140.0	146.2
Expendit're charge- able to Capital Account	3.1	3.7	7.6	11.9	30.8	30.9	27.2	} 58.9	50.	44.1
Expenditure for Railway subsidies	1.2	3.2	2.5	1.6	1.2	.8	4.9			
Other charges . . .	0.6	.1	.9	2.4	2.9	7.1	.2			
Special War Ex- penditure . . . . .	....	....	....	....	....	....	....	....	50.	100.
Total Expenditure.	40.7	44.0	57.9	83.2	122.8	137.1	144.4	186.2	240.0	290.3

*Since 1907, the fiscal year has ended on March 31st; 1910-11 covers the period from April 1, 1910, to March 31, 1911, and so forth.

†Estimate of Minister of Finance.

TOTAL REVENUES & EXPENDITURES DOMINION OF CANADA 1890-1 TO 1915-6. (IN MILLIONS OF DOLLARS)



* MAIN ESTIMATES FOR YEAR, NEW TAXES INCLUDED IN ESTIMATE OF REVENUE.

- TOTAL RECEIPTS.
- - - - - EXPENDITURE CHARGEABLE TO CONSOLIDATED FUND.
- + + + + + CAPITAL AND OTHER EXPENDITURE.
- TOTAL EXPENDITURE.
- x—x—x— WAR EXPENDITURE.

CHART II.

TABLE III
Chief Sources of Revenue, Dominion of Canada
1891-1916

(In millions of dollars).

	1890-1	1895-6	1900-1	1905-6	1910-1	1911-2	1912-3	1913-4	1914-5	1915-6
Customs	23.3	19.7	28.2	46.0	71.8	85.0	111.7	104.6		
Excise	6.9	7.9	10.3	14.0	16.8	19.2	21.4	21.4		
Chinese Head Tax..	.1	.1	.1	.01	1.1	1.5	1.7	1.3		
Dominion Lands ...	.2	.1	1.5	1.6	3.1	3.7	3.4	3.0		
Post Office	2.5	2.9	3.4	5.9	9.1	10.4	12.0	12.9		
Railways and Public Works	3.7	3.6	5.7	8.3	10.8	11.6	13.1	14.2		
Other Sources	1.8	2.3	3.3	4.3	5.1	4.7	5.3	5.7		
Total.....	38.5	36.6	52.5	80.1	117.8	136.1	168.6	163.1	130.0	150.0

loans from Britain and other countries which rests upon our, say, \$10,000,000,000 of total wealth, and which practically equals the total value of all the farm land and farm buildings in Canada.

These estimates have to do with the days before the Great War. What the burden of taxes, relative and absolute, will be after the war is over, not the hardest prophet can compute. Every European power in the fray is spending many times its ordinary income, borrowing billions in the grandchildren's name. The actualities of past and present are, however, sufficiently staggering.

A striking feature of Canadian, as of United States finance, is the high proportion which municipal taxes bear to the whole. Toronto's budget surpasses Ontario's, just as New York city's debt runs close to the debt of the United States. In the immediate future, this proportion will be smaller, because of the slackening of municipal construction on the one hand and the increase of federal expenditure for war purposes on the other. Municipal finance will none the less continue of vital importance. The present article will, however, be confined to federal finance, in some of its more elementary aspects.

It may be useful to recall briefly the leading facts as to federal revenue and expenditure.

The table above, Table II and Chart II, show the growth in both items in the past twenty-five years.

The main sources of the Dominion's revenue are given in Table III. The outstanding feature is, of course, the extent to which we have relied upon the tariff on imports, and to a less extent upon the excise taxes on liquors and tobacco, for our revenue throughout this period, and in fact throughout our financial history.

The main objects of expenditure are given in Table IV. In every branch of administration, it will be seen, there has been more or less rapid growth. The debt charges have increased comparatively little, in this period, as Table V shows more in detail. Of the other items of ordinary or current expenditure, charged to Consolidated Fund, the chief increases have been in the subsidies paid to the provinces and in public works, with military and naval expenditure running them close. The post-office and the government railways show a rapid increase, which has been more than offset by the gain in

TABLE IV.
Chief Objects of Expenditure, Dominion of Canada
1891-1916
(In millions of dollars).

	1890-1	1895-6	1900-1	1905-6	1910-1	1911-2	1912-3	1913-4	1914-5*	1915-6†
<i>Consolidated Fund.</i>										
Debt Charges	11.7	12.8	13.4	13.4	14.1	13.8	14.4	14.7	15.4	24.1
Subsidies to Provin's	3.9	4.2	4.2	6.7	9.0	10.2	13.2	11.2	11.2	11.4
Public Works	1.9	1.3	3.3	7.4	8.6	10.3	13.4	19.0	33.2	22.3
Railways & Canals.	4.5	3.8	6.3	8.7	11.1	12.3	13.7	14.9	16.7	15.5
Post Office	3.1	3.6	3.9	4.9	7.9	9.1	10.8	12.8	14.9	16.6
Militia & Defence . .	1.3	1.1	2.0	4.2	6.8	7.5	9.1	11.1	11.6†	5.7†
Naval Service . . . .	...	...	...	...	2.2	1.9	2.0	2.0	2.4†	2.8†
Civil Government . .	1.3	1.4	1.4	1.9	4.4	4.7	5.1	5.6	6.8	7.0
Legislation . . . . .	.6	.9	1.1	1.3	1.6	2.4	1.3	1.4	1.9	1.8
Agric. & Statistics.	.1	.2	.6	.6	1.3	2.7	2.6	3.2	3.9	4.2
Collec., Cust. & Exc.	1.3	1.0	1.5	2.1	2.8	3.1	3.9	4.7	5.2	5.2
Dominion Lands . . .	.1	.1	.1	.4	1.8	2.2	2.4	3.2	4.0	3.4
Immigration . . . . .	.1	.1	.4	.8	1.0	1.3	1.2	1.9	2.1	1.8
<i>Capital and Special</i>										
Canals	1.2	2.2	2.3	1.5	2.3	2.5	2.2	2.8	36.0	32.1
Intercol. & PEI Ry.	1.2	1.3	4.1	3.9	.8	1.8	2.5	4.5		
Transcontinent'l Ry.	...	...	...	1.8	23.4	21.1	13.7	12.6		
Hudson Bay Ry . . .	...	...	...	...	.1	.1	1.1	4.5	13.6	11.9
Welland Ship Canal	...	...	...	...	...	...	...	.9		
Public Works . . . .	.5	.1	1.0	2.3	3.7	4.1	6.0	10.1		
Railway Subsidies . .	1.2	3.2	2.5	1.6	1.2	.8	4.9	19.0	?	?

*Main and Supplementary Estimates.

†Main Estimates.

‡Apart from special war expenditure; this does not in any year cover drill halls, etc., included in Public Works.

receipts. Of the lesser items, the increase in civil government, or civil service expenditure, has been most noteworthy.

TABLE V.
Debt of Canada
(In millions of dollars).

	1890-1	1895-6	1900-1	1905-6	1910-1
Net Debt	237.8	258.4	268.4	267.0	340.0
Interest on Debt	9.5	10.5	10.8	10.8	12.5

	1911-2	1912-3	1913-4	1914-5*	1915-6*
Net Debt	339.0	314.3	335.9	446.0	586.0
Interest on Debt	12.2	12.6	12.8	13.4	21.5

*Estimates of Minister of Finance.

It is, however, the increase in capital expenditures that accounts for much of the advance on the debit side of our national accounts. In theory, Capital Account covers expenditures for distinctively permanent objects, while Consolidated Fund covers current expenditure. In practice the distinction is not always observed; some public works are charged to Consolidated Fund which might with equal logic be charged to Capital, and some expenditures on the Intercolonial, for example, charged to Capital, should more properly come out of current funds. When a Canadian finance minister announces a surplus, as was done every year from 1898 to 1914, and for rather better than half the years before 1898, he meant that total receipts exceeded expenditure on consolidated fund. At the same time it might be possible, and in fact has been true for every year since Confederation except eight,* that consolidated and capital expenditure taken together exceeded total receipts, and that our debt had been increased in spite of the flourished "surplus." Assuming that the expenditures charged to capital fund are really for permanent objects, there seems no good

*1871, 1882, 1900, 1903, 1904, 1907, 1912, 1913.

reason why they should not be so differentiated from current outlay, as they would be in the case of a private corporation, and why, further, the bulk of such expenditure should not be borrowed, if need be, and the difference between receipts and consolidated fund expenditure be accounted the proper surplus—or deficit. The bulk of such expenditure only—for, in addition to the sinking fund, at least so much should be provided from current revenues as would correspond to the allowance a private company makes for depreciation. That much posterity may reasonably ask from us: if we do more, and pay for all our capital expenditures as well out of current taxes, posterity will bless us more abundantly, even though recognizing that our generosity was not intentional but was due to the quasi-automatic increase of revenue, following increase of imports.

So great in the past have been our federal revenues, so steady their increase, that it has been possible to an astonishing degree to pay for legitimate capital expenditures out of income. In the fifteen years from 1900 to 1914 there was spent on capital account nearly \$300,000,000, as compared with about \$220,000,000 in the thirty-two years between Confederation and 1899. The National Transcontinental accounted for one hundred and forty-two millions of this sum, the Intercolonial and Prince Edward Island Railways for fifty, (actually averaging more capital cost each year than when the Intercolonial was originally under construction in 1869-1876), the Quebec Bridge eleven, the Hudson Bay Railway six, canals fifty, militia ten, and public works forty-six. Yet at the close of this later period the net debt had increased by only seventy millions, and interest on debt by only two millions a year, as against an increase of one hundred and ninety millions in the period from 1867-1900 in net debt and of five millions in interest charges. Whether or not, then, these works were all wisely conceived, whether or not they were often extravagantly executed—and for the most part they will beyond doubt be of great service in the development of the country—posterity, at least, has no ground for complaint. We have handed on, as a result of the ambitious, lavish days of the early twentieth century, national works on which three hundred millions have been expended, and have asked posterity to bear only an extra two millions a year in interest. The obligation to complete those unfinished has, of course, also been handed on.

But those days are gone. It is no longer a question how much of the 'surplus' over current expenditure can be set aside for capital outlay. It is now a question how to try to make ends meet on current expenditure. With the closing of the great railway construction period and the collapse of the land boom which accompanied it, imports declined and customs revenues fell away. Even before the war broke out, the downward tendency was strong: for the first seven months of 1914—calendar year—federal revenues were twenty per cent. less than for the same period in 1913. Then came the war, cutting down revenue still further by the disturbance of shipping and financial arrangements, and increasing expenditure tremendously through the instant determination of the people of Canada to strain every nerve in the struggle for the liberties of the world. Even without the war, serious reconsideration of our financial policy would have been imperative; with the war, it becomes too obvious to need discussion.

In outlining some of the main issues involved, it may be well to discuss separately what may be called the 'emergency' policy and the 'permanent' policy, to borrow phrases from the navy debates of long, long ago.

Faced with the sudden demand for uncounted millions for war, the Finance Minister had no option but to borrow, as he forcibly put it in his 1915 budget speech:

So far as concerns our special war expenditures, which may reach one hundred million dollars, I should be disposed, if we had not such heavy and uncontrollable capital expenditure to meet, to recommend that we should pay at least a part of it from current revenue. But it is obvious upon a consideration of the figures which I have submitted that we shall not by any reasonable supplemental taxation measures be able to close the gap between revenue and expenditure, much less to pay a portion of the principal of our special war outlay. In the circumstances I have no hesitation in proposing to the House that we shall borrow the full amount required under this heading. Canadian governments have always justified public borrowing for capital account on the principle that expenditure upon enterprises, permanent in their nature, enures to the benefit and advantage of future generations, who may therefore fairly be asked to pay interest upon the debt contracted in respect of them. If this theory is correct, and so far as I know it has never been seriously challenged, then we need have no reluctance in borrowing to meet the expense of this war, because such borrowing is for the purpose of accomplishing for

future generations that which is infinitely more precious than material undertakings, namely, the preservation of our national and individual liberty and the constitutional freedom won by our forefathers during centuries of struggle, enjoyed by us to-day, and destined, we believe, to be ours for all time.

Fifty millions were appropriated for 1914-15, and double that amount for 1915-16; from present appearances this appropriation will be exhausted before the year is ended.

The capital and special expenditure called for, as will be seen by Table or Chart II, was reduced in 1914-15 and 1915-16 below the high-water mark of 1913-14, though still far above that of previous years. Much of this expenditure was uncontrollable, required to further undertakings already in hand, though the rate of continuance advisable in each case gives room for wide difference of opinion. More vulnerable was the decision not only not to decrease but to increase the expenditure on current account. The Main Estimates for 1915-16 called for an expenditure of over \$146,000,000, the same as the Main Estimates of the previous year, but six millions more than the amount actually spent and charged to Consolidated Fund in that year. The militia and naval service ordinary expenditures were reduced by six millions, the special activities of the war superseding many routine outlays. Public works estimates charged to income were cut eleven millions, from the preposterous sum of thirty-three of the year before, but remained twice as high as in 1912 and three times as high as in 1910. The addition of over eight millions to debt charges was, of course, unavoidable. The net result of additions and reductions is that the estimates of 1915-16 call for an expenditure on ordinary current account sixty millions greater than was made in 1910-11 and one hundred millions above the figures for 1900-01.

There is much to be said for maintaining or even increasing public expenditures in times of depression. In a note contributed to this review some six years ago, the present writer advocated considering whether the principle of the government acting as the fly-wheel in the industrial machine could be applied to Canada. In times of prosperity, when capital and labor alike are scarce and interest and wages high, our governments come into the market and add to the private demand, forcing the pace still more furiously. Then when the

lean years come, and capital and men alike seek employment, governments have usually been constrained to cut down their demands and still further intensify the contrast. If it were politically feasible to lay out great construction projects for the lean years in this way, and to resist clamor for going ahead at once in good times with works approved for future undertaking, the expedient would undoubtedly do much to regularize employment. To justify, on this theory, high expenditure in depression, however, two requirements must be complied with—the expenditure must be for necessary purposes and be economically controlled, and there should have been a preparatory reduction in expenditure in the good times preceding. It is one thing to make government expenditure fall and rise to offset rise and fall in private undertakings, and another to advocate that it should always rise and never fall. At the present time, too, interest rates are abnormally high, not abnormally low.

Given this total expenditure, a hundred and ninety millions in both the past and the present fiscal year, aside from the war votes, and given total revenues falling to about a hundred and twenty, there was little question that fresh taxation must be imposed to lessen this huge gap of seventy millions. A beginning had to be made in shouldering the new burdens, and the country's credit would have suffered had no attempt been made to meet at least part of the deficit. Nor was there much question, under the circumstances, where the Finance Minister would have to look for his new revenue. Income taxes, land taxes, general corporation taxes, or other expedients would require time for investigation and for getting the machinery into play, and time was lacking. An increase of customs and excise taxes on the old lines, the introduction of stamp duties and taxes on a few classes of corporations, as actually adopted in 1914 and 1915, were undoubtedly the readiest means of securing immediate and substantial returns. Under ordinary circumstances the flat increase of the preferential tariff by five per cent. *ad valorem* and of the general tariff by seven and a half, would be open to grave criticism: the imposition of a tax on all but a few articles in the free list would be indefensible even on protectionist principles, and it would appear strange that fifty years' experience of tariffs had not made it possible to discriminate between different schedules, indicating in what cases a higher tariff would yield

more revenue and in what cases it would simply prevent further importation. But in the early months of the war, immediate revenue was more important than exact justice, and a flat horizontal increase had the possible advantage that it could be repealed en bloc in future. The new customs and excise taxes imposed in August, 1914, were calculated to yield \$15,000,000 in a full year, and the additional taxes of 1915 about twice that sum.*

What of the future? The first task of to-day is the efficient and unrelenting prosecution of the war to a successful end, and no other question, howsoever important in itself, should be allowed to interfere with that endeavour. Yet, as experience so far has shown, the silver bullet is as effective as the lead one, and if the war drags on indefinitely, financial strength and soundness will be not least among the determining elements. With Great Britain compelled to give four and a half per cent. for money, our own borrowing is bound to become more difficult, and the question of ways and means more serious than in the easy-going past. And quite aside from the demands of the war, there is urgent need for at least discussing now how we are to meet the demands of the reconstruction period after the war is over.

First, can expenditure be reduced? Capital outlay, it may surely be supposed, can be substantially cut. The Hudson Bay Railway, the Welland Canal, the Quebec Bridge will have to be carried through. The National Transcontinental, however, is

*There has been much discussion in party newspapers as to whether these new taxes are properly termed "war taxes." If by war taxes we mean taxes imposed during war, or taxes made necessary, in whole or in part, by the effect of war on revenue, the new Canadian taxes are certainly war taxes, just as are the stamp taxes recently adopted in the United States. If the term means taxes imposed to meet the expenses of the war, its applicability is a matter of individual choice. The plain facts are that, with the new taxes, total revenues fall short of meeting expenditures other than for war by sixty millions in 1914-15 and fifty in 1915-16, and that this deficit as well as the whole war expenditure is met by borrowing. Or, if we include in war expenditure the five or six millions paid out of Consolidated Fund for pensions and interest on new borrowings, the deficit in meeting ordinary expenditure is that much less. Of course, if anyone will pay his taxes more cheerfully by believing they go to carry on the war, it is quite legitimate for him to figure that the whole of this hundred and six millions is met by taxation, new or old, and that we borrow to meet practically all our ordinary expenditure.

practically completed, or rather the first construction cost is provided, for no railroad is ever completed; branch lines will have to be built, and the decision of the government to operate the road from Winnipeg and Fort William to Moncton will involve further outlay for equipment. But the great trunk lines are built, and construction will be confined to cheaper branch lines for years to come: at last an end of subsidies, loans, guarantees can reasonably be expected.

Again, there is surely no room for question that substantial reductions could be made in ordinary expenditure. The country cannot absolutely require for current expenditure a hundred millions a year more than in 1901, sixty millions more than in 1911. Mr. A. K. Maclean, the financial spokesman of the Opposition, put the point frankly and forcibly in August: "I think I may in fairness say that a large proportion of the public expenditures made in this country in the past—and I am not referring to the expenditures made by one government or another—was very doubtful indeed, and I believe the public will demand that in the future a vast amount of public expenditures of the character made in the past must necessarily be abandoned or abated."

To take only two branches of expenditure. The Public Works estimates for 1914-15, main and supplementary, called for an outlay of forty-six million dollars, including income and capital expenditure. The first year Sir John Macdonald guided the destinies of the Dominion the total expenditure for all the purposes of government, ordinary and capital alike, was less than one-third of this sum (fourteen millions); the last year he was in power they were still not up to this mark (forty millions), though it had been exceeded during the years of building the C.P.R. In 1911-12 the expenditure on Public Works, under both heads, totalled fourteen, and in 1900-01 four millions. There is of course no limit to the amount that could be spent on public works; every village might have its fifty thousand dollar post office, every town its hundred thousand dollar drill hall, every creek its wharf. The present custom amounts simply to wholesale bribery of constituencies. If any member of parliament mildly criticizes the total, he is blandly asked whether he suggests that the new custom house in his own constituency should be omitted. This is supposed to be a joke on the member; unfortunately the joke is really

on the country. In theory our system of cabinet responsibility checks the wild extravagance of the United States Congress, which every session prepares its "pork-barrel," or appropriations for rivers and harbors and public buildings, but in fact we are rapidly approaching the same state of affairs.

Again, there is no question that great savings could be made in civil administration, not by cutting salaries, but by more efficient organization and lessening of overlapping and excessive appointments. The recent statement of the *Civilian*, the organ of the Civil Service, upon this point is perhaps over-optimistic, but it certainly merits consideration :

"We have nothing to do with appraising the blame or glory of Civil Service administration as between the two parties in Parliament. But we have a responsibility as to the members of the organized and indeed of the unorganized service as well. This responsibility prompts us, as a positive duty, to point out that the public service is overmanned to a remarkable degree and on account of the overmanning, of inefficient organization, or duplications and other kinds of waste, there is a loss, conservatively estimated, of over \$5,000,000 a year."

But, in public as in private expenditure, it is easier to raise the standard of living than to lower it. The most heroic Finance Minister would find himself confronted by the active resistance of vested interests, and by the heavy drag of inertia. We cannot expect very many millions saving. And on the other hand, some increases are inevitable. Debt charges are already up ten millions, and may be ten or twenty more, according to the duration of the war and of the deficits on non-war account. A heavy pension list is certain: the people of Canada will not grudge generous appropriations to do what money can do to make up for the loss of those sacrificed in the common cause. A semi-official estimate has computed the probable requirements at \$18,000,000 a year for every 50,000 men in active service one year. This seems high, but there is no question that even though confined to legitimate claimants, the pension list will be a large one. Again, whatever the ultimate result of this war may be upon militarism, and however futile the policy has been proved of preventing war by making preparations for war, yet pending the coming of the new time, it is possible that in the immediate future larger naval and possibly army expenditures will have to be undertaken. Back of all these outlays there is the black cloud of railway guaran-

tees so lavishly given by federal and provincial governments alike, and quite likely, in the case of one province at least, to be shifted to the broad shoulders of the Dominion if the burden becomes unbearable. Both parties have shared in the readiness to back the railways' notes; what their relative responsibility may be, is not the present question. Every one will hope that the interest upon the hundreds of millions of guaranteed bonds can be met, or that, if not, the period of defalcation will not be long, but the possibility that the Dominion treasury will, for a term of years at least, be called upon to meet part of the burden, or to face the nationalization of the systems in question, with consequent heavy additions to debt, cannot be forgotten.

The net result is, that, especially if the war is prolonged, federal expenditures will be very heavily increased. We cannot permanently borrow to meet the deficit. Whence is the new revenue to come?

From public domains and public works? The provinces may look to a great and increasing revenue from their forest lands, if properly administered, but the Dominion's timbered areas in the far Northwest are less promising. The possibility of securing a net revenue from the western lands suitable for farming has long been given up in the interest of rapid settlement: probably rightly, so far as the free homestead policy is concerned, but very dubiously, so far as the policy of land grants to railways goes—or went. From natural resources we cannot look for any great revenue.

Nor are our state-owned canals and railways likely to add much to the treasury. Years ago we adopted the policy of making the canals as free as the roads of the country, in the interest of cheap transportation. Our railways have not been made free, but at least no attempt has been made to secure any appreciable net revenue from them. One administration after another has been content when possible to make ends barely meet, on the same principle that low rates and development are better than high rates and stagnation. Sectional influences have made in the same direction, the Maritime provinces claiming that their railway should not be made a source of profit any more than the canals of Central Canada. Quite aside from this fact, the Intercolonial of old and the National Transcontinental of the future, are not fairly to be judged by

the figures in the ledger. Both were built largely for national and political purposes, the one to bind the eastern provinces to the centre, the other to give the Dominion breadth as well as length.

It might be possible, however, while keeping rates on the Intercolonial low, to secure additional revenue through it. Had the Canadian Pacific in earlier days secured the Intercolonial, it was prepared to guarantee existing rates, to maintain the staff at existing strength, and to pay a rental to the government, and it would still have expected to make a profit. How? Doubtless by the same policy which gave it traffic and profit in the west in the lean days—by building up the tourist possibilities. With good hotels at strategic points and a vigorous advertising policy, it should be possible to attract a very much larger tourist traffic to the Maritime provinces, with their splendid scenery and—for America—their wealth of historic interest. As to the National Transcontinental, much will depend upon the terms, not yet disclosed, which have been made with the Grand Trunk Pacific: is there to be an interchange of traffic at Winnipeg, or is the G.T.P. free to route its eastward freight to Chicago and Portland? Much will depend, also, on the through-rate policy adopted. With its shorter route and better grades and construction, the National Transcontinental should be able to carry grain from Winnipeg to the sea at lower rates than its competitors, and both for the sake of the west and of building up its own traffic, low rates should be given. The Canadian Pacific could stand its competition; will the declared inability of the Canadian Northern to accept lower rates, and the interest which the government as stockholder and bond guarantor has in the latter road, prevent that policy being adopted? Slower to develop will be the local traffic, from farm and forest, but, in spite of partisan critics who seem anxious to go down to posterity side by side with the croakers who a generation ago declared the C.P.R. would not pay for the grease on its axle wheels, the ultimate possibilities of this great northern empire are said by the best authorities to be excellent.* For the present, however, no net

*A leading newspaper speaks of "the manless wilderness" through which the N. T. R. runs. Have the pessimists forgotten that when the Canadian Pacific Railway Company began its work, there were not five white men between Brandon and Kamloops?

profit from this source is to be expected; in fact, a deficit on operations is not improbable for a short time.

The new revenue, then, must come from taxation. What are the feasible sources? In making a classification, it has been customary to divide all possible taxes into direct and indirect, direct being those collected from persons who are expected and intended to bear them, and indirect from persons who are expected to be able to pass them on in the shape of higher prices. The distinction is an important one. It has constitutional importance, since the British North America Act limits the provinces to direct taxation, while permitting the Dominion to levy both direct and indirect. It has psychological importance also, since the fact that the Canadian taxpayer has made not one-tenth the outcry about his national tax-bill that the Englishman made about his smaller national bill is largely because he did not know how great the bill really was, did not realize that a large part of his grocery or dry goods bill was really a payment to government—plus the merchant's profit on the extra outlay.

For the present purposes, however, it may be better to divide taxes into taxes on property, taxes on income, and taxes on expenditure.

Taxes on expenditure have hitherto been almost the sole reliance of the federal government, customs duties on goods imported into the country, and excise duties on goods manufactured and sold in the country. Both have been indirect taxes, though this is not true of the new taxes on expenditure levied this year.

Beyond question, customs duties will for years remain the chief source of federal revenue. The ease of collection and the huge amount they can be made to yield, endear them to a Finance Minister, while the readiness with which they can be utilized to give protection to home manufacturers assure the support of a powerful interest. There are, however, grave drawbacks. Not least is the rapid fluctuation in imports, and hence in customs duties. It was the tremendous if temporary rise in imports from 1909 to 1913—from 288 to 670 millions—that overflowed the treasury and made possible the rapid increase in the scale of expenditure, which we are now finding it difficult to readjust. Again, in war time or depression customs revenue falls off sharply, and puts a government mainly de-

pendant upon it in a difficult corner. In the last fiscal year imports were nearly two hundred millions less than two years earlier, and duties fell almost in proportion. Again, customs taxes, even if levied on a tariff-for-revenue-only basis, are open to serious objection on the ground of fairness. Expenditure is not a fair test of income or of taxpaying capacity. The man with a thousand a year has to spend a far bigger percentage of his income on tax-paying necessities or semi-luxuries than the man with a hundred thousand a year. The poor man in Canada bears not only his own load but part of the load the rich should carry.

But our tariff is not merely an instrument of revenue; it is also an instrument of protection. To many this combination appears impossible: if the tariff keeps out the foreign goods that threaten the home producer, how can any revenue arise? The matter is not quite so simple. A tariff is made up of countless schedules, some of which may be almost solely revenue-producing, while others may be purely protective. Again, where a commodity is produced in the country but not in sufficient quantity to meet the demand, a tariff may yield revenue on the part imported and at the same time aid the home producer by enabling him to raise his price by all or part of the duty. Yet the more effective the duty is as a revenue yielder, the less effective must it be in fostering home production.

Some months ago, Grain Growers' locals in the west wrote Sir Robert Borden and Sir Wilfrid Laurier, professing great anxiety to know whether they should buy Canadian goods, and thus aid the Made-in-Canada movement, or buy English or American goods, and thus provide sorely-needed revenue for the government. Sir Robert promised to take the matter into his serious consideration; Sir Wilfrid replied that had the government not been extravagant, the urgent need for new revenue would not have arisen. Yet, however adroitly statesmen may sidestep it, the dilemma remains. Sir Edmund Walker, emphasizing the need for lessening our heavy debts to outsiders, recently declared that "every dollar's worth of merchandise imported which could be made at home, or which could be avoided as an expenditure altogether, is a sin against Canada at this moment." Doubtless for the moment this is the greater need, but it bodes ill for revenue.

At the beginning of this article a leading Canadian business man was quoted as declaring that the need for greater revenue made a high protective tariff certain sure for another generation. Taking it for granted that customs duties will remain the chief reliance of the Treasury, does it follow, as he implied, that it is by raising or maintaining the distinctively protective schedules that the desired revenue is to come?

If we assume for the present, that the tariff is to be maintained both as a means of revenue and as a means of protection, two elementary requirements only may be suggested. In the first place, in a business-like administration of the tariff, it should be stated frankly which schedules are relied on to produce a revenue, which are in effect prohibitive, and which give a measure alike of revenue and of protection. Some of the more obvious facts in this connection may be gleaned by a study of the customs from outside and may be discussed in a later article, but complete and authoritative analysis by the departments in charge is badly needed. Again, what do the public, at least, or members of parliament, know of the actual facts of protected businesses? The theory of protection is simply that, in the belief that such aid will in the long run give the country varied industries producing at a low price, the people consent to pay for a time such higher prices as may be necessary for the products of certain home producers. What is the fact? What stock has ever been taken by our government authorities? What measure of aid is really required, what profits are being made in each protected establishment to which every inhabitant of this country is paying a bonus? Britain and Germany are levying special taxes on "war profits"; we do not even know what peace profits are. Perhaps it would be "paternalism" to demand a statement of profits, though apparently it is not paternalism to give the bonus. If these two steps were taken, measures which are obvious business requirements, the whole tariff question would be much simpler to deal with.

Excise duties in the past have been confined to a few articles of wide use, considered, however, to be luxuries and more or less under the moralist's ban—chiefly liquors and tobacco. They have been fertile sources of revenue, the total receipts growing from ten millions in 1901 to twenty-one in 1913. In spite of the advance of temperance legislation, the per capita

consumption both of spirits and of beer has increased by about half in the past ten years. It may be surprising to some to note that the average Canadian now drinks far more spirits than the resident of the United Kingdom (1.11 gallons in 1913 as against .69), though we are far behind as to beer (7 gallons as against 27.3), and take only half as much wine (.13 as against .25 gallons). In view of that fact, and of the desirability of encouraging the consumption of malt liquors at the expense of spirits, it is worth considering whether the present tax on the latter could not be still further increased. True, the Canadian tax, as increased in August, is now \$2.40 per gallon, as against only \$1.10 in the United States, but the United Kingdom before the war levied \$3.60 and has added a shilling or so since. Beer pays four or five cents a gallon in Canada, as against a little more than three in the United States, and about six in the United Kingdom before the war and nearly twenty since. Cigarettes are taxed two or three times as heavily in Canada as in the United States, but cigars the same, three dollars per thousand, except that in the United States cigars weighing less than three pounds a thousand are let off with a seventy-five cent duty.

This year for the first time excise taxes have been levied directly on the consumer. Every purchaser of a railway or steamship ticket and every sender of a telegraph message is required to pay a small tax, to be collected by the company and transmitted to the government. Further taxes are levied by means of stamps upon cheques and bills of exchange, money orders, bills of lading, patent medicines, bottles of wine, and upon letters and post cards. With the exception of the last-mentioned, most of these are reasonable, as taxes go, and it is possible they will be continued for a time after the war. The tax upon cheques may impede business to some extent, but the experience of the United Kingdom has shown that this is not a serious objection in the case of any transaction worth using a cheque for. The total yield will not be great.

So much for taxes on expenditure. Taxes on property have been nearly unknown in federal finance. This year a special form of property tax was levied on a few large corporations. Chartered banks are taxed one per cent. upon the average amount of notes in circulation, roughly equivalent to

one per cent. on their capital. Loan and trust companies pay one per cent. on their gross income from Canadian business, and insurance companies other than life, marine, fraternal and purely mutual companies pay one per cent. on net premiums. These taxes together yield about \$1,500,000. In themselves they are reasonable. It might be questioned whether the tax on bank circulation will not discourage somewhat the opening up of branches in new sections, as the inevitable loss on new branches for some years has hitherto been offset by the profit on note circulation; on the other hand, circulation is possibly a fairer test of relative ability to pay than capital, though neither is as fair as income.

Whether these institutions should be the only ones taxed, or whether all other corporations should be taxed on property or income, is a more important question. Why are they taxed? Because it is assumed that they have large profits. The Minister of Finance declared that, after careful consideration, it had been decided not to tax telegraph companies, because "their profits were not large." Really, therefore, it appears that net income is the basis upon which, consciously or unconsciously, these special taxes have been framed. Why not, then, make income the basis in the case of other corporations, and of individuals? But of this later.

It has been proposed that the Dominion should follow the example of Ontario and Nova Scotia and levy a tax of as many mills as may be found necessary upon the existing assessment of every municipality. So far as the provinces are concerned, this tax has much to recommend it, in ease of collection and greatness of yield. Although imposed to meet war-time exigencies, it is more than probable that the tax will be retained by the provinces after the war. If so, the questions of reaching personal property not covered by the Business Assessment, of equalizing assessment between different urban municipalities and between country and city, the taxing of property exempted by the municipality or the exemption by the province of a minimum of a thousand or so, will have to be faced.

For the Dominion, the proposal has the same attractive promise, at first glance, of immediate and large yield. However, the drawbacks seem decisive against it. First would rise the nice constitutional question whether the Dominion could do what Ontario has done, order the municipalities to collect

the tax along with their own taxes, and pay it over. If not, new machinery of collection would have to be devised. Again, there is the point of the unfairness of taxing all property regardless of whether it is bringing in a revenue or regardless whether the nominal owner is in debt for practically the full value of his property. This drawback exists in the case of a property tax by any authority, but the unfairness becomes intensified when not one but three authorities heap up taxes on the one basis. But perhaps more decisive is the astounding inequality of local assessment. In most provinces, there is a rough equality in the standard of assessment, though in the absence of an equalizing board this will tend to disappear if the province raises its tax and makes it an object to a town to have a low nominal assessment. But as between different provinces and sections there is an extraordinary difference. This may perhaps be most readily seen from the following table, which indicates that the assessment valuation of taxable property in the two cities of Calgary and Edmonton is greater than the valuation of every town and city of five thousand and over in Canada east of Toronto—Montreal and its satellities alone excepted.

TABLE VI.

Comparative Assessed Valuation of Canadian Towns.

City	*Popu- lation 1911 Census	Assessed Valuation of all Taxable Prop'ty, 1913	City	Popu- lation 1911 Census	Assessed Valuation of all Taxable Prop'ty, 1913
Calgary	43,704	\$133,023,618	Charlottetown, P.		
Edmonton	24,900	202,247,890	E. I.	11,198	\$ 4,468,635
Total	68,604	\$335,271,508	Amherst, N.S. . .	8,973	4,361,040
			Dartmouth . . .	5,058	2,512,923
			Glace Bay . . .	16,562	4,047,353
			Halifax	46,619	27,913,150
			New Glasgow . .	6,383	4,082,140
			Spring Hill . . .	5,713	788,180
			Sydney Mines . .	7,470	1,749,415
			Sydney	17,723	8,094,380
			Truro	6,107	3,372,683
			Yarmouth	6,600	3,690,000
			Frederic'n, N.B.	7,208	5,683,283

*In the absence of complete and authoritative estimates of the population of all the towns and cities listed in 1913, the census figures of 1911 are given. Calgary and Edmonton, of course, increased faster between 1911 and 1913 than the average eastern municipality.

Moncton	11,345	7,600,000
St. John	42,511	33,196,300
Fraserville, Que. /	6,774	2,296,070
Hull	18,222	8,276,274
Joliette	6,346	2,589,220
Levis	7,452	2,900,000
Sherbrooke . . .	16,405	8,829,860
St. Hyacinthe ..	9,797	3,345,325
Sorel	8,420	2,478,700
Thetford Mines ..	7,261	2,229,265
Three Rivers ...	13,691	10,703,475
Valleyfield . . .	9,449	5,106,850
Belleville, Ont. .	9,876	5,077,432
Brockville . . .	9,374	3,711,445
Cobourg	5,074	1,905,967
Cornwall	6,598	2,098,138
Kingston	18,874	10,408,097
Oshawa	7,436	2,823,666
Ottawa	87,062	100,158,087
Pembroke	5,626	3,169,730
Peterborough . .	18,360	10,535,622
Port Hope	5,092	2,334,843
Smith's Falls . .	6,370	3,596,079
Total	483,029	\$306,094,080

Proud as Edmonton justly is of its rapid progress, it is hardly likely that its most patriotic citizens would carry pride the length of wanting to pay more than seventy times as much Dominion taxation as thriving Oshawa, or more than all the towns in the Maritime provinces and in Quebec except Montreal. To use the local assessment as a basis of taxation, would, then, be plainly most unfair.

The proposal to tax one form of property, land values, has been advocated even more strongly. Here, too, a new and independent assessment would evidently be required, and if it is really revenue that is sought by this proposal, the owners of unsaleable town lots are not the readiest source at present. Quite aside from these immediate objections, the country is not yet a convert to the single tax gospel, or in a mood to favor all other forms of wealth than land. Undoubtedly the growth of land values is in unusual degree—the difference is only one of degree—due to the activities of the general community, and this constitutes a ground for special taxation of such increased value. The fairest way to tax this ‘unearned increment’ is to tax it—to levy a special tax on all increase in value, above a certain percentage, as shown by the annual assessment. This would tax only land that had increased in value, and not, like the exemption of improvements, all land, whether its value has risen or fallen. Such a tax would of

course be fluctuating, accruing chiefly in boom times, but as these are also the times of rapid increase in public construction work by the cities, this would fit in well. Such a tax might well be divided between city or county and province; the two claimants could use it all, and the diversity of conditions throughout Canada would besides make any attempt to raise a share of federal revenue as well by this means inadvisable. Now when land values are high such a tax could be instituted, especially in the east, without any shadow of unfairness to land owners, even though it might be some years before an appreciable revenue was obtained.

The only other form of property tax which need be considered is a succession duty or inheritance tax. It has many advantages, particularly that evasion is difficult, if kept within bounds, and that it taxes most those best able to bear it. The fact that some of the provinces, notably Ontario, already impose a heavy tax of this kind is the chief objection, though this is not insuperable. The total succession duty collected by the provinces in 1912-13 was slightly under three millions. The new taxation has to come out of the pockets of the people somehow, and whether out of one pocket or out of two in the same suit is not the main consideration. Provided that the increased levy were not so great as to stimulate evasion by transfer before death—and British and French experience shows that a pretty high level can be adopted—this source of new Dominion revenue has much to recommend it.

Finally, we have the income tax. Or rather, we haven't it. Unlike the majority of nations, we have hitherto made not the slightest endeavor to use this great engine of taxation. So long as revenue could be raised in abundance by customs and excise taxes, Ministers of Finance, the first maxim of whose profession was long ago stated to be to secure as many feathers with as little squawking as possible, have naturally declined to favor it. Mere considerations of justice were not enough. But now necessity adds its weight to justice. For the first time in our fiscal history the Minister of Finance found it advisable this year to devote a part of his Budget speech to a serious discussion of the income tax. True, he urged strong objections against its adoption, but the important point was that it had to be faced at last. Like a politician, a proposed reform would rather be attacked than forgotten.

The detailed form such a tax should take is a matter for careful discussion. Possibly a tax on all incomes over \$1200, with an exemption of \$1200 on all incomes up to \$6000,* and with additional exemption in the case of married men and for each child, would be advisable.

What, briefly, are the merits of an income tax? Perhaps most important is the fact that it is on the whole the fairest test of ability to pay. Expenditure is not a fair test of that ability. Under a system of taxation which takes expenditure as the basis, the poor man, as has been said above, is compelled to pay more heavily than the rich. His expenditure swallows up practically all his income, while the millionaire, even with lavish personal and household outlay, usually spends only a minor fraction of his income. Again, given two men with the same income, one with a large family to support and another with no one but himself to spend for, a system of taxation according to expenditure, such as we now have in the Dominion, piles up the greater tax on the back of the man who already has the greater burden. A straight income tax of the older type would tax both the same; an improved income tax, as modified by recent developments, notably in the United Kingdom and the United States, would take the size of family into account in determining the amount of exemption allowed, and thus equalize the burdens fairly.

Nor is property an entirely adequate test. In the long run the value of property used for production must correspond to its yield, must equal the capitalized value of its possible income. But taxes are paid in the short run. Here are two railroads which have cost the same amount to build: one runs through fertile, well settled territory, and has a large surplus; the other runs for hundreds of miles through wilderness. Should both pay the same tax?* One manufacturer is just trying to build up a market: another, with plant of equal value, has a market and profit secured; one farmer has a good year,

*That is, the man with \$1300 a year, and entitled to no other exemption, would pay the stated rate on \$100; the man with \$3000, on \$1800.

* "In dealing with taxation measures, we have to deal with classes. We cannot single out for special taxation a wealthy corporation or individual, and pass over those less wealthy of the same class."—Hon. W. T. White, Hansard, March 18, 1915.—True, and an admirable argument for an income tax.

another, a bad one—and yet the property tax falls alike on one and the other. A property tax exempts men in high salaried positions, as compared with men drawing the same income from a factory. It is true the salaried man should be taxed lighter, since his income ends with death, while the man with property can hand down his principal to his heirs: on this account it is fair to include both property and income taxes in the fiscal system, or to discriminate between 'earned' and 'unearned' incomes, as has been done in Britain of late years. Again, one man owns a store without incumbrance; another has a mortgage on his to two-thirds its value. Should both be taxed the same? Or can all the countless forms which property takes be reached adequately by such a tax?

Income is not a sole and perfect test of ability to pay, but it is more adequate than any other single test. Taxes on property, taxes on expenditure will and should long remain as as part of our fiscal system, but to redress the balance somewhat a tax on income should also be included.

The other chief merit of an income tax is one which it has in common with all direct taxes—the merit of being felt. So long as we pay our taxes without knowing it, so long will extravagance be at a premium. An income tax would not entirely stop our taxes going up but at least it would impose some drag on the aeroplane—if an aeroplane is a correct simile for taxes, seeing that aeroplanes usually come down some time or other.

What are the objections to an income tax? Objections there are, real and weighty. They have not sufficed to prevent nearly every important country from adopting and extending it, but they certainly require careful consideration. They have been stated in brief and very forceful form by the Minister of Finance in the last Budget debate, and we cannot do better than take his summary.

"It will be observed that I have in these special taxes omitted an income tax upon individuals, about which there has been some discussion since the outbreak of the war. The matter has had the consideration of the government, and it appears clear to us that such a tax is not expedient, at all events for the present. Under the British North America Act, while the Dominion may impose direct or indirect taxation, the provinces are restricted to the former. At present under legislation existing in certain of the provinces income is subject to taxation by municipalities,

and in two instances by the provinces themselves. In other provinces no income tax exists, though in lieu thereof a business tax is levied upon incorporated companies. In order to bring into force an income tax, the government would be obliged to create machinery for assessment, revision and collection. This would involve a heavy expense as compared with the amount which would be realized. Taking the income tax of the United States as the basis, it would appear that Canada could hardly expect to derive from a similar tax a sum in excess of two million dollars, from which would have to be deducted the heavy expense connected with its administration. My chief objection, however, to an income tax is the fact that the several provinces are also likely to be obliged to resort to measures for raising greater revenue, and I am of the view that the Dominion should not enter upon the domain to which they are confined to a greater degree than is necessary in the national interest. There is another feature of the income tax which makes it unsatisfactory for the purpose of Dominion finance; I refer to the length of period which must elapse before it becomes productive. In Britain, where the tax is the chief source of revenue to the Imperial Government, there is no municipal taxation upon incomes. There is also the important difference that in Britain taxable incomes are derived largely from investments. They have therefore a settled and permanent character, are ascertainable with fair accuracy, and are capable of being levied upon at the source. With us this is not the case."*

First may be noted the objection that a long period would elapse before such a tax could become productive. In the United States, opponents of an income tax used to urge that it should not be imposed in peace, but should be reserved for great national emergencies, such as war. When war comes, we are told an income tax cannot be devised in time to be of any service. Q. E. D. So far as the immediate necessities of the first war budget were concerned, there is no question that this objection was sound. An income tax requires time, time for thorough investigation as to the best form to adopt, time for getting the machinery of assessment and collection into working order. It could not give results as immediate as a customs or excise tax. But that objection has no force for the future. The war may last a long time; in any event, there will long be need for heavy expenditure, and the sooner we begin to plan our permanent policy the better.

*Hansard, Feb. 11, 1915.

Next, as to smallness of yield compared with expense. Mr. White computes the yield for Canada at two million dollars a year. Evidently this result has been arrived at by taking the yield of the United States income tax on individuals for 1913-14, \$28,253,534, and taking one-fourteenth of this sum,—the ratio of our population to that of the United States. (It is a useful reminder in our spread-eagle or spread-beaver moments to recall that the growth of population in the United States since the Census of 1910 is equal to our whole present numbers). This computation, however, is not a proper one. The United States returns for 1913-14, were only for ten months, and they were for the first year's working, when the machinery was not fully in force. The figure of \$28,000,000 does not represent the full income tax secured; income derived by individuals from dividends, etc., is not included since by a provision of the same law corporations pay direct on their net income: the amount received from the combined tax was really \$71,000,000. Further, the United States tax gives the preposterously high exemption of \$3,000 to single persons and \$4,000 to married couples. What the cost of collection was, has not been stated; it was not high, due in part to the fact that the burden of collection and exemption was thrown, to an undue extent, upon banks and other private corporations.

When seeking an estimate of yields and cost, why 'look to Washington'? In the United States itself the well-devised income tax levied by the state of Wisconsin brought in \$3,500,000 in 1912, and \$4,000,000 in 1913; it cost less than three per cent. to administer, while our own customs revenue, from 1901-1913, cost 3.6 per cent. to collect. Or look to London. The British income tax, for the last year before the war, yielded \$225,000,000; adopting the same population-ratio method of comparison, we should get in Canada, not two millions, but over thirty-seven millions. Cut that down as you will for this and that allowance, and a very respectable sum indeed will remain.

No, the weightiest objection to the income tax will be the opposition of those who fear it will take too much from them, not of those who fear that it will yield too little.

Mr. White's chief objection, however, is the desirability of leaving this and other direct taxes to the provinces. True, the provinces will have to spend still larger sums in the future, as the demands of good roads, public works, the better administration of justice, and education increasingly are felt. Yet in

1912-13 the total expenditure of the nine provinces was only \$52,000,000, (British Columbia leading with fifteen, and Ontario following with ten), as compared with \$144,000,000 by the Dominion. Considering, further, that federal subsidies provide nearly twelve millions of the provincial funds, that nearly all enjoy great national resources, capable of yielding permanent and increasing revenue, and that they nearly all utilize succession duties and taxes on financial and transportation corporations, to say nothing of the new tax on municipal assessment, it would appear that there is no need for the Dominion to refrain from direct taxes on this account. For that matter, the new Dominion taxes on banks and insurance companies are equally direct taxes.

But this is not all. One of the advantages of a federal income tax would be precisely that the provinces could use the same basis for taxation. If a tax is fair and the basis not a narrow one, what objection is there to both using it? Of course both province and Dominion could not secure all their revenue by each taxing, say, banks alone, or from an unearned increment tax on land alone, but income is not a limited basis: out of income most taxes must come, on whatever principle they may be levied. The larger the area of assessment of an income tax, the less the risk of evasion; a municipality cannot possibly collect such a tax fairly, when the sources of income, from corporations or other businesses are nation-wide or even international. That, along with the failure to provide adequate assessment machinery, is why the income tax as now levied in Ontario is and must be largely a farce. So the Dominion can much better ascertain total income than any province. Given this Dominion assessment, then, what is there to prevent any province co-operating and adding so many mills on that part of the Dominion assessment falling within its jurisdiction? The Dominion, for its part, would co-operate, rather than increase the subsidies it pays, and there is no question that it is better that the province which spends the money should also raise the money.

The final objection is the fact that in Britain incomes are to a greater extent than in Canada derived from investments, and are therefore more settled, more easily ascertained, and more easily taxed at the source. The statement involves the only really serious difficulty in the way of an income tax—the

question of administration. As the objection is usually put, an income tax is certain to be evaded. Is this inevitable?

In Great Britain, the principle of collection at the source is adopted as far as possible. The landlord's income tax is paid by the tenant, who deducts it from his rent, and the shareholder's or bondholder's income tax is deducted by the company from the dividend or interest paid. The income from "profits" however is ascertained by the declaration of the business man, reviewed by the government authorities. Now, if stoppage at the source were the only adequate means of collecting an income tax, it could be adopted in Canada without difficulty so far as rentals, dividends and interest, and salaries are concerned; the fact that these sums would bear a smaller proportion to the total income than in Britain is an objection, but not a fatal one. There has been a rapid growth in Canada of corporate activity and corporate wealth, and an increasingly large proportion of total income takes the above forms.

However, it is by no means certain that stoppage at the source is the best method. As a matter of fact, this method is now largely abandoned or supplemented in Britain itself. Anyone whose modest rentals or dividends have been stopped at the source, if his total income falls under the £160 which is entirely exempt or under the £700 which is partly exempted, may recover some or all of this amount by making a declaration of his total income. As a matter of fact, then, the great bulk of income taxpayers do make a personal declaration of total income. Again, since the introduction of the supertax (a heavier tax on all incomes above £5000, upon the amount by which they exceed £3000), stoppage at the source has been abandoned here also in favor of declaration plus official revision.

The British system is a complicated one, instituted so long ago that modern business arrangements have adapted themselves to it. It does not follow that it would be best for another country to adopt. The system of requiring every taxpayer to make a declaration of total income and then checking this by "information at the source," information drawn from the same agencies which under the British system would have to collect and forward the tax, seems to be preferable. This system is advocated by many authorities in the United States, and has been worked out with much success by the Wisconsin

Tax Commission.* The new French income tax also, adopts a system of personal declaration rather than of stoppage at the source.

But this is not the time, and space forbids, to discuss the many important questions of administrative detail, important as they are, which would have to be considered if once the principle of an income tax were accepted. The experience of the United Kingdom, of France, of Denmark, of Holland, of Austria and Hungary, of Italy, of Japan, of Norway, of Sweden, of the United States, of Wisconsin, and of many other communities which rely upon an income tax for nearly half their tax-revenue, assures us that whatever the problems may be, they have been and can be solved. Anyone who fears to adopt an income tax solely because of the risk of evasion must believe either that Canadian citizens are liars beyond all other men or that Canadian statesmen and officials are incompetent beyond all others.

A fourth division of taxes might have been made—poll-taxes. They have, however, almost entirely disappeared from modern fiscal systems. We have an interesting example of such a tax in the \$500 head tax levied on every Chinaman of the laboring class entering Canada, a tax divided between the Dominion and the province of entry. British Columbia householders have strong convictions as to the incidence of this tax, by the way. The rumor that the Minister of Finance is strongly in favor of imposing a thumping poll tax on all bachelors is probably a report via Sayville, New York.

O. D. SKELTON.

*"The statement so often made that an income tax 'makes a nation of liars' can easily be shown to be false. Any person who, like the writer, has had occasion to review and test the correctness of thousands of income tax returns will be impressed by the evident truthfulness and honesty with which the vast majority of such returns have been prepared. In one thousand returns which were defective or erroneous it was found that one-third contained errors which had the effect of *increasing* the tax. Of the remainder the great majority were erroneous through obvious ignorance or misunderstanding of the provisions of the law. The number in which there was any evidence of a deliberate attempt to defraud the law was very small—safely under five per cent."—K. K. Kennan, Supervisor of Income Tax, Wisconsin, in *Annals of American Academy*, March, 1915, p. 75.

CURRENT EVENTS.

GREAT BRITAIN.

Coalition.

The new Government came into existence without notable enthusiasm on the part of the nation, though men of good will feel that the step is wise. In this war party is an impertinence, and the representation of all sides in the new Cabinet must bring fresh support at a time when the Government most needs public sympathy. We could wish that the step might banish factious criticism, but that is unlikely. In a month or two the young men of the *Mail** and *Post* will be yelping again at the heels of the Government, and extreme Radicals on the other side will exhibit their capacity for dissidence. The latter have already shown restiveness; the former wait to see if their pet nostrums are to be adopted. Perhaps, however, the papers on both sides will now be judged at their proper value, and discounted because they are not the organs of a great party, but are grinding the axe of Mr. A. or Lord B., who happen to own them.

Coalitions in the past have had a bad repute for reasons which hardly affect the present combination. Some were extraordinarily base, or despicably inefficient; others lost prestige because they were founded on compromise between parties holding different principles. The first reason does not apply to-day, and the very immensity of the war, by blotting out all old issues, has made it unnecessary to modify or abandon any party principle. It may be difficult for colleagues to forget animosities left from old struggles, and it is a distinct disadvantage that a Cabinet which had learned to work together should be shaken up in the midst of its work. But magnanimity and competence is the least the nation can expect from its rulers in these great days.

The reasons which prompted Mr. Asquith's sudden resolve to call in other parties can only be imperfectly known at present. The Government, which had risen to the occasion during the war in a manner surprising even to its supporters, had lately begun to lose prestige. The futile agitation on the drink question did it much harm. The evil was declared to be a

*Later. They have already begun.

greater danger than the Germans and heroic measures were foreshadowed; but Mr. George's proposals were strangled in the Cabinet, and the weaker bill submitted to the Commons had to be modified still further. But the matter of restraining workingmen from getting drunk was—to the credit of the workingman—a very small part of the whole problem of organizing labour. The scaffolding for this great work already existed in part, for the new Labour Exchanges furnished means for registering and mobilizing workers where needed. But no bold line was taken to solve the innumerable difficulties which demanded adjustment between masters and men.* If this has largely hindered the supply of munitions—and there is the best authority for believing that it has—the War Office is not primarily to blame. The settling of labour policy is a matter for other departments and for civilian ministers. As it seems to the writer, the fact that a new Ministry of Munitions has been formed is no admission that the wild criticisms of Lord Kitchener were just, but it does prove that the task of a civilian Government during war is to organize and develop all domestic resources for military purposes, and that this task had not been carried out with complete imagination and foresight. Under the old system five committees, with overlapping functions and responsible to different departments, had the care of munitions. The new Ministry is autonomous and centralized, has great powers, yet appeals in the first place to local initiative and responsibility. A third cause of the Government's fall—apparently its occasion—was the internal dispute at the Admiralty about strategy. Such an issue no layman can judge, but it appears that the schism could not simply have been between the expert and the amateur. Doubtless Mr. Churchill is a particularly difficult man to keep within bounds, but it is apparent that no great scheme like the Dardanelles campaign could possibly be planned unless a body of experts consented and the Cabinet agreed. Even Lord Fisher acquiesced, or he would have resigned earlier. However the responsibility is to be divided—and partial history will probably praise or blame by results—this serious difference was a last blow to the Government, and Mr. Asquith decided to invite the Opposition to join him. As that body could no longer fulfil

*See the *Round Table* for June, where an admirable article fully discusses labour difficulties during the war.

its function of effective criticism, its leaders felt that they could best do their duty by sharing the responsibility which the Government carried. The accession of members of the Labour party is a matter for thankfulness in view of the great task of mobilizing industry which lies before the country. Equally it is unfortunate that Mr. Redmond decided to stand out in accordance with the tradition of his party. His reasons no doubt are adequate, and he has done and will do service to the country in the freer position which he occupies.

Compulsion.

The immediate task before the Ministry, as a thousand tongues have said, is organization. Most sensible people will be content to believe that only those who know all the facts are in a position to judge what measures should be taken. But writers and politicians would not be human if they did not advocate *ad nauseam* their own particular remedy, which, as usually happens, they had in stock long before the war. In these last months the favourite word has been 'compulsion,' and a usual retort to that is 'you are Prussianizing.' The first word is ambiguous and the second question-begging. As applied to the army, 'compulsion' means that the Government calls up those fitted and needed to serve at the front. That particular method has not been used in England for a century, and authorities say that up to the present forced service is unnecessary, though it may later be required. It has the advantage, no doubt, that the Government is able to assign each man to his post, as in France and Germany. On the other hand, it is extremely awkward to change a system in the middle of a great war, and the voluntary plan has given the required numbers so far. To talk of the 'apathy' or 'indifference' of the nation is pitiful rhetoric in view of the fact that hardly a family in Great Britain is unrepresented in the army, and that men have hitherto come in as fast as the military authorities could equip them. If the Government, after full trial, decides that the compulsory method must be adopted, most people would acquiesce. On the other hand, it is mere folly to talk of 'Prussification.' At this moment the democracies of France and Belgium and Italy are defending liberty by that very means. It can hardly be asserted that France is less democratic than England, and only poor readers of the British char-

acter are likely to believe that the national independence will be fundamentally changed because a great need may demand a great piece of self-sacrifice. The sane course is to stop advocating doctrinaire views on either side, and await what circumstances show to be the better course.

If there are difficulties about military compulsion, industrial compulsion is a far harder problem. So far as can be judged from its most perfervid advocates, 'shirkers' are to be told what to do and made to do it; but how many shirk, and how they are to be forced is a little uncertain. This attitude has been helped by unfortunate labour troubles and by the undoubted shortage of munitions, and also, it must be said, by a feeling that here is a chance to put the workingman in his place.

Again, a prejudice formed before the war hardens into a comfortable doctrine without due regard to facts. We are not creating an army of workmen; they are there already with their institutions (the result of long growth) formed for their specific needs. The trades unions represent a standard of life which has been attained by their members. It is the course of common sense to work through the unions instead of breaking them up. One thing has not been realized by the critics, namely, that men cannot be forced to work for private owners. All industry must be taken over by the state if compulsory labour is to be adopted. Before any drastic steps are taken—and we do not believe that they are or will be necessary—the Government has several duties to perform. The first is to ensure that the unions should not suffer after the war through patriotic concessions made now. The second is that undue profits shall not be made, whether by workers or masters, from this war. The third is that disputes shall be decided upon *definite principles*. On the positive side the Government must work so far as possible through existing institutions, securing that such institutions shall be adapted to pressing needs. This implies the hearty co-operation of masters and unions, which has been given. That there have been trouble is due in part to the censorship, to the irresponsible headlines in the papers, which encouraged optimism, and the preoccupation of ministers with administration, which kept them from their other function of educating the people. It is most unjust to argue that working men as a class have fallen short. Lord St. Davids, a great ship owner, has borne testimony to the self-sacrifice and devotion

of the dock workers whom he has observed, devotion perhaps greater than any of their critics have shown. If the Government shows the way, there is no reason to doubt that it will be eagerly followed. This lead has now been given by the Minister of Munitions, whose adaptable mind and power in the country marked him out for his position.

The trades unions are to guarantee that the work shall be done and protective regulations relaxed, and they are also to exercise pressure on defaulters. The Government has power to control traffic in drink within areas where munitions are made. Lastly, the Registration Bill, which should have been pushed much earlier, will give the detailed knowledge necessary to make the most of our resources. Though extreme Radicals protest against this on the ground that Government may make a bad use of it, there is no reason why such doctrinairism should block a calm survey of resources and a determination to use them to the utmost.

Northcliffe or Kitchener.

One deplorable effect of the censorship is the opening given to sensation-mongers. It brings the 'fog of war' to our doorsteps and into our houses. As so little is known, much can be guessed or feared without the vivifying contact of fact. As a natural consequence the Northcliffe press has now the chance of a lifetime. Not a year ago it insisted that Lord Kitchener was the one man to save the country. To-day it has done its best to assassinate its nominee. The recent outbreaks against the *Daily Mail* did not express resentment at fair or true criticism. The country recognized a venomous personal assault behind the mask of patriotism. The *Mail* insinuated, indeed insolently asserted, that Lord Kitchener's main merit as a soldier was that he knew how to advertise, and that his task was gone the day that conscription came. This of the man who achieved almost the impossible in the organization of our new armies. It would not have been a Northcliffe paper if it had not suggested that he was a 'back number' and now a little old for his work. The writer has been reminded of a brilliant skit published some years ago in which articles from the *Daily Mail* of 1805 were reproduced. The first assailed Nelson as old-fashioned and a do-nothing, reminded the Admiralty that he was over forty, and demanded his instant recall. The

second, after Trafalgar, began like this: 'Nelson is dead. What a tragedy lies in that word. He was only forty.' Only in one thing is the Harmsworth press certain, and that is in its instability. Any cause it embraces it will desert if the flood of favour seems to go another way. Its contortions on the 'stomach-tax' (a Harmsworth coinage) may still provoke a smile, and who can forget the solemn rebuke to war scare-mongers written by the impressionable Lord Northcliffe himself after a brief visit to Berlin? In peace time this kind of antics may amuse the judicious, but it constitutes a real peril in these troubled days. The need of a Government at a crisis like this is that they shall be supported by national confidence. They and they alone can know the facts or form a judgment on them. The Northcliffes, whose business is selling newspapers, are not experts in warfare. Their field is popular psychology, and their aim is to strike the emotions, whether with the *Times* or with *Comic Bits* and *Home Chips*.

Nothing stirs emotions like personalities; hence the dastardly attacks on Lord Haldane, without whom there would have been no Expeditionary Force and no Territorial Army, and on Earl Kitchener. The first has succeeded. As success is the breath of life to this kind of journalism, we fear that appetite will come with eating, and the baser sort will demand some fresh head for the guillotine daily. The evil does not merely destroy confidence, it actually prevents legitimate criticism from having effect. It was, for example, proper to make public the great shortage of munitions, because the public, knowing a danger, will help in remedying it. But amid so many false alarms, when assertions are mingled with random assaults on men who cannot answer, like the head of the Ordnance Department, or on men who disdain to answer because they are occupied in great affairs, criticism commits suicide. One result of this war, it seems probable, will be a lowering in the prestige of the press, and this will not be due to the censorship merely, but to men's discovery, now that party is in abeyance, that the great papers are incapable of surrendering the partisan spirit in a crisis.

A. S. F.

CANADA.

Canada and the War.

The war drags slowly on. In spite of the immense superiority of the Allies in numbers and in resources, the honors of the land campaign are undoubtedly still with the enemy. Fighting on interior lines, showing more initiative in devising new weapons and methods of war, unrestrained by any principles of honor or humanity, the Germanic powers have more than held the ring of Allied states at bay. Yet, as the experts tell us, the war against Germany and Austria-Hungary is best compared to a siege, and, as it would have been untrue to say that the Germans had made no progress in 1870 in their siege of Paris, when fifty days had passed without the city falling, so it is unsound to argue that no progress has been made now in wearing down the resistance of the central powers.

The new sense of the difficulty of the Allies' task has not shaken the determination to see it through. Particularly in the United Kingdom, it is rather leading to doubled efforts and a readiness to meet any call that may be needed. On all sides it is felt that to stay the hand now would merely mean postponing the evil day, and make inevitable another struggle with German militarism, probably with fewer allies and on less favorable terms.

In Canada we have naturally not been affected by the war to the same extent as our cousins across the sea. That is not due to undue lack of imagination or interest on our part, but simply, in last analysis, to geographical aloofness. If the main battlefields of the war began some thirty miles from Canada's instead of England's shores, the shoe would be on the other foot.

Yet the country is moved as never before in its history. The realization of what is at stake grows deeper each day, and with it the determination to do what can be done for the cause of the world's freedom. Probably here as in Britain the willingness and the resources of the country have not been mobilized to the full, but the Government, within the scope left to it by the British authorities, has acted with earnestness and, in some instances, with vigor. The Minister of Militia, of late, has earned golden opinions on his unrelenting energy. In recognizing early the need and possibility of manufacturing munitions in Canada, and appointing a Commission to organize the work,

he rose admirably to the occasion. The manufacturers have responded in unexpected degree, though the War Office and to a less extent our Shells Commission seem responsible for the effort being much less effective than it might have been. It is easy to criticise after the event, however; it is more just to recognize how much has been done by suddenly improvised means and amid the uncertainty as to what needs would develop most. Nor has there been any lack of volunteers for the trenches, whenever the call has come from our military authorities, and rich and poor among those who stayed at home have done what they could do to heal the suffering of those at the front and protect those who needed aid at home. Now for the first time the supply of volunteers appears to be falling behind the numbers called for, but a vigorous appeal to the country will soon set that right.

The shock of the casualty lists of Langemarck did more than anything before it to make this our war. Huge abstract totals of killed and wounded meant little compared with the names of the men from our own town and county. The country thrilled with pride at the story of the grit and steadiness displayed in the critical days about Ypres, and joined as one in the sorrow of those whose sons and husbands had made the sacrifice in the common cause. Here, as in Britain, the seriousness of the task is only leading to deepened determination to see it through.

Our Foes at Home.

The record of united service has been marred by the eagerness of a few grafters in business and politics to make money out of their country's necessity. Jail sentences for them are urgently needed. The Government was slow to recognize the seriousness of the position, but in appointing an efficient Purchasing Commission and reading Messrs. Garland and DeWitt Foster out of the party, the Premier lived up to what the country expects of him. It looks now as if good would come out of evil. It took war conditions to bring out vividly and dramatically the evil of the patronage system. After the war the lesson will not be entirely forgotten.

But Ottawa pales before Winnipeg. Never in our history, not even in the Langevin-Mercier days, have such sordid revelations of political corruption been made, involving directly

men in the highest places. For years the rottenness of the Manitoba Government has been a by-word in Canada. It maintained itself in power only by the most unblushing bribery of constituencies, by the use of physical force to prevent an expression of the electors' will, and latterly by an appeal to some of the unassimilated foreign communities. The result of the last election showed that its days were numbered, but few outsiders expected that the end would come so soon. The amazing story of conspiracy between party leaders and public works contractors to secure a huge rake-off for party funds, the attempt to twist or destroy public records, and to bribe conniving officials to stay out of the country, equals the worst achievements of New York or Pennsylvania grafters.

Following upon these revelations came the counter charges that the new Liberal ministry had been bribed by money to drop election protests and bribed by office to drop the probe into the Parliament Buildings steal. It is to be hoped that these charges will be investigated at once without fear or favor. Manitoba's housecleaning must be thorough, now that at last it has begun. Public opinion will be slow to believe that men like Norris, Brown, Thornton, Hudson and Johnson were privy to the deeds alleged. If the charges are proved, still heavier condemnation will fall upon the Liberal than upon the Conservative offenders. They had before their eyes the spectacle of the end to which grafters come, and had not even the poor excuse that their moral fibre had been sapped by years of office. One thing is certain, Manitoba will be roused to secure honest men, whatever their party stripe.

Not least sinister of the incidents in this upheaval is the action of the heads of the G. N. W. Telegraph Company in hastening to suppress the evidence contained in telegrams between Messrs. Roblin, Coldwell, Simpson, Rogers and others. The close connection between corrupt politicians and big business has rarely been more dramatically revealed. Mr. Lash, president of the G. N. W., has attempted to defend the company's action in burning the telegrams, by appealing to the obligations, based on law and on honor, which forbid a telegraph company to reveal private messages to any third party. Very good, but when the third party is a Royal Commission, seeking to ferret out a conspiracy against the province, the defence is a bit too flimsy, and when it is shown that these very telegrams had been taken off the files and shown to a

third party, the General Manager of the Canadian Northern Railway, it becomes transparent. As the telegrams were destroyed at midnight, a few hours before the subpoena was delivered, the company may have technically escaped contempt of court, but it has certainly been guilty of contempt of the people of Canada. We are accustomed to boast, and with justice, of the superior speed and sureness of our laws, as compared with those of the United States, when it is a question of bringing a murderer or a petty thief to justice. The next few weeks will test the power of our laws when not a friendless individual but powerful corporations are seeking to block the path of justice. Who owns Canada, anyway?

Another glimpse behind the party scenes has been afforded by the proof that the Grand Trunk Pacific subscribed \$15,000 stock in the Edmonton Bulletin, owned by Hon. Frank Oliver, while the latter was Minister of the Interior. The seriousness of this attempt to purchase the support of a leading newspaper and a cabinet minister cannot be denied. Again it is a case of a great railway corporation being hand in glove with politicians. The incident points the need of a law compelling every newspaper to publish a list of its stockholders. If the readers of every Montreal, Toronto and Winnipeg newspaper knew whose money was behind it, they could appraise the disinterestedness of the advice offered to better effect.

No single mechanical reform, and no number of such reforms, will purify Canadian politics if the people are callous and party-blinded. But the task of keeping politics clean will be made immensely easier if the same remedy of publicity is brought in to deal with the campaign fund evil. We must frankly recognize that the political party is a necessary part of our governmental machinery, and recognize, too, that it cannot be maintained on air. In these days of card-index systems, a party cannot be kept in efficient working order (save in rare outbursts of public enthusiasm, when volunteers swarm) without some provision for the heavy work of organization. The method adopted in the past has been to reward the party workers by civil service jobs, or by cash from a fund contributed in part by men who honestly favor Conservative or Liberal principles, as the case may be, and in part by business men who expect to get their money back many fold by being put on the patronage list, or being given railway subsidies or

protective duties. In England they sell titles, not contracts, to fill the campaign treasury. We have secured an instalment of Civil Service reform in Canada; the abolition of the patronage list is a possibility. More positive action is needed. The rank and file of each political party must be made to realize that a party has legitimate expenses to meet, and that if these do not come from honest sources they may come from dishonest sources. The days of miraculous manna are over: a party member must contribute to his party chest just as a church member contributes for the spread of his faith. The political party that, without legal compulsion, first announces its intention to call for subscriptions from a dollar up, and to publish every subscription received, from whatever source, will have done a good day's work for Canada.

When that fund will be needed, is as yet uncertain. The possibility of a premature general election has not yet entirely died away. For such a proposal not a shadow of decent excuse has been offered. The government has a majority of fifty. Its term of office does not expire till the fall of 1916. The elections held in Australia and New Zealand shortly after the outbreak of the war afford no parallel; in New Zealand the legal term had expired; in Australia there was a deadlock, the government having only one of a majority; in both cases the election was announced before the war. The only legitimate ground for an election in the midst of war would be a vital difference of policy as to the conduct of the war. No such difference exists. The parties differed, it is true, on the navy question, but that difference cannot be made an election issue now. Whatever the government has done in naval matters since the war broke out has been done under and in accordance with the Laurier Naval Service Act. As for the permanent policy after the war, who can doubt that both parties will have to revise their programme in view of whatever international situation develops and whatever technical lessons are learned, as a result of the war? The only recent difference on public questions arose over the method proposed to raise revenue to meet the deficit on other than war expenditure; neither these taxes nor the war loans were delayed an hour in going into force. Party sniping there has been by a few politicians and newspapers on each side, but that has been because of the seeming imminence of an election, and would stop at once or be stopped by public disfavor were Sir Robert Borden to say

frankly there would be no election until at least the legal limit had been reached.

The Position of the United States.

The position of the United States as the only great neutral nation has been one of peculiar difficulty. It has been bombarded by advice and criticism from every outside quarter, and within its own borders the conflict of opinion has been acute. Yet President Wilson has succeeded in steering a course which has won the approval of the great majority of the people of the United States.

At the outbreak of the war there was much clamor both in the United States and in the Allied countries in favor of the United States joining our ranks. The great weight of opinion, however, both at home and abroad, was against this view, and later events have shown more clearly how unreasonable it was. The main reason urged for its intervention was the justice of the Allies' cause and the greatness of the issues at stake. The sympathy of the vast majority of the people of the Republic was on their side: why should not their government take action? Those who urged this view forgot that though nations may go to war the more readily and fight more unitedly because they feel they fight for the world's freedom as well as for their own interests, they are not in the habit of joining in a quarrel merely to advance the cause of justice. Some direct interest of their own must be at stake to lead them in. There is no question that the United Kingdom would not have entered the war had not her own interests been directly assailed by the threat of a triumphant Germany facing her thirty miles across the Channel: self-preservation made it necessary to go in before it was too late. True, the violation of Belgium's neutrality turned the scale in favor of intervention, and united her people as no other cause could have done, but Britain would not have been a signatory to the treaty protecting that neutrality had not Belgium been so close to her shores that she could not look with equanimity upon its possession by either France or Prussia. Again, it was urged that the United States had itself been a signer of Hague Conventions protecting neutral states against attack and laying down certain rules of war which have been repeatedly violated by Germany, and that it was therefore equally in honor bound to

intervene. That this statement could be repeated time and again in English and especially in Canadian newspapers, and that it is still circulating in the back concessions, shows how easy it is for prejudice and misinformation to get a footing. The Hague Conventions are only part of the body of rules of international law which have been adopted by most civilized states. They do not in the least bind one nation to enforce those rules against another which violates them. They are simply promises by each nation to abide by these rules itself. The notion that in signing them any country undertook to enforce them against other powers is a preposterous mistake, which has not the slightest foundation in past agreement or discussion. When during the Balkan war rule after rule of the Hague and other conventions was broken by Servians, Greeks, and Bulgarians, in callous and brutal fashion, what single man who now has criticized the United States then dreamed of calling upon France or Britain, as signatories of that convention, to intervene? The whole misconception arises out of the confusion between the Belgian agreement, which was explicitly an undertaking by certain powers to protect another, and the ordinary rules of international law, which are simply promises by each nation as to its own future conduct.

True, it may be that in the future, and as a result of the war, the need will be felt of some international league to enforce peace. A year ago, such a proposal would have seemed wildly Utopian; to-day, it has been brought within the bounds of practical discussion. But as yet it does not exist.

Some color was given Canadian criticism along this line by Mr. Roosevelt's reiteration of the same contention. His position was clear: always a belittler of the peace movement, a believer in the fallacy that preparation for war could stop war and was the only thing that would, he naturally tried to twist the facts to make out that the Hague Conventions had been proved useless. Some of the fortunately few Canadians who have been disposed to praise Roosevelt's courage and high sense of international justice and sneer at Wilson's weakness would do well to remember some events of only yesterday which throw some light on what courage is. When Roosevelt was president, difficulties occurred with Colombia in securing a right of way for the Panama Canal; Roosevelt connived at a

sham rebellion which set up a state of Panama practically under American protectorate, despite a solemn treaty, a scrap of paper, by which the United States explicitly bound itself to protect Colombia from any attempt to break it up. Later, when the Panama Canal was built, and Congress had passed a law making it free to United States coast shipping but charging tolls upon British and other vessels, and when it was shown that the law was in violation of a treaty with Great Britain, another President was in the White House. Although his party was pledged by its platform to uphold that law, although the law was popular because to most it seemed preposterous that the United States should spend half a billion in building the canal and reap no special benefit, yet Wilson took his political life in his hands and by political pressure and appeal to the conscience of the people, he induced the United States Congress to do what precious few parliaments have ever done—admit it was wrong in an international controversy—and the law was repealed. That was the real test of courage and of international honor.

Looked at from the Allies' standpoint, it is probably to our advantage that the United States should keep out, if possible. True, it has a strong and efficient navy, practically equally to Germany's, but the Allies' naval preponderance is already tremendous, while its army is small and in spite of big expenditure, not too well equipped. If it were to enter the war, it would simply mean that the stream of munitions now beginning to go to the Allies would be turned to the use of the United States forces, who would not be able to use them for many months later. The progress of the war has shown, as was never before realized, that the man in the factory is as essential as the man in the trench, and by devoting a great part of its manufacturing equipment to turning out supplies for the Allies, the United States is setting free so many more Englishmen and Frenchmen for the field. As a financial centre, the United States has been indispensable for Canada in the past year and is becoming more and more relied upon by the Allies in general. A further point may be noted. Many felt that even though not going to war with Germany the United States should have officially signified its displeasure by breaking off diplomatic relations. Such a step would have added little to the weight of unofficial American condemnation of German ruthlessness and it would have made entirely im-

possible the work of Belgian relief which is a remarkable instance of the executive efficiency of our neighbors.

At times, however, whatever might be the interest of the Allies or of the United States itself, it seemed as if it would be drawn in as a result of incidents of the war affecting its own citizens. Some provocation came from the Allies, which have stretched the rules as to contraband and blockade very nearly to the breaking point, and have sought to justify their conduct toward neutrals by contending that Germany had done worse: which, as has been pointed out, is much as if, after Smith had stolen Jones' apples to break Brown's windows, Brown should claim the right to steal more apples to break Smith's windows. Fortunately the policy announced by the Allies has been applied with moderation in concrete cases, and the United States government has thus far been patient upon the matter of principle. Much more serious and spectacular have been the gross violations of the rights of neutrals by Germany in the course of its submarine campaign. A German submarine, like any other enemy warship, has an undoubted right to seize any Allies' ship, and if impossible to take it into port, it probably has a right to sink it: in such a case, however, the crew of the vessel and much more, the passengers, must not be harmed, unless offering resistance. A neutral ship is equally liable to seizure if proven to carry contraband; if contraband makes up half the cargo, the ship itself may be condemned, if less, the cargo only. Neutral citizens on a troopship or transport are, of course, subject to attack as much as if they were belligerents in name as well as in fact. But to establish the neutral ship's guilt, boarding and search at the very least are essential, if not prize court enquiry, and the crew and passengers are still more unquestionably immune from attack. The only possible defence of the German policy is afforded by the alleged misuse of American and other neutral flags, but this misuse could be detected if the suspected ship were boarded and its papers examined, as is clearly the rule of war. Only the combination of fatuousness, arrogance, callousness, and inability to see the other side which has marked German diplomacy and policy could have achieved the folly and the crime of the *Lusitania* attack and other similar incidents.

The attack was a direct challenge to the United States. It could not permit the lives of its citizens to be endangered by

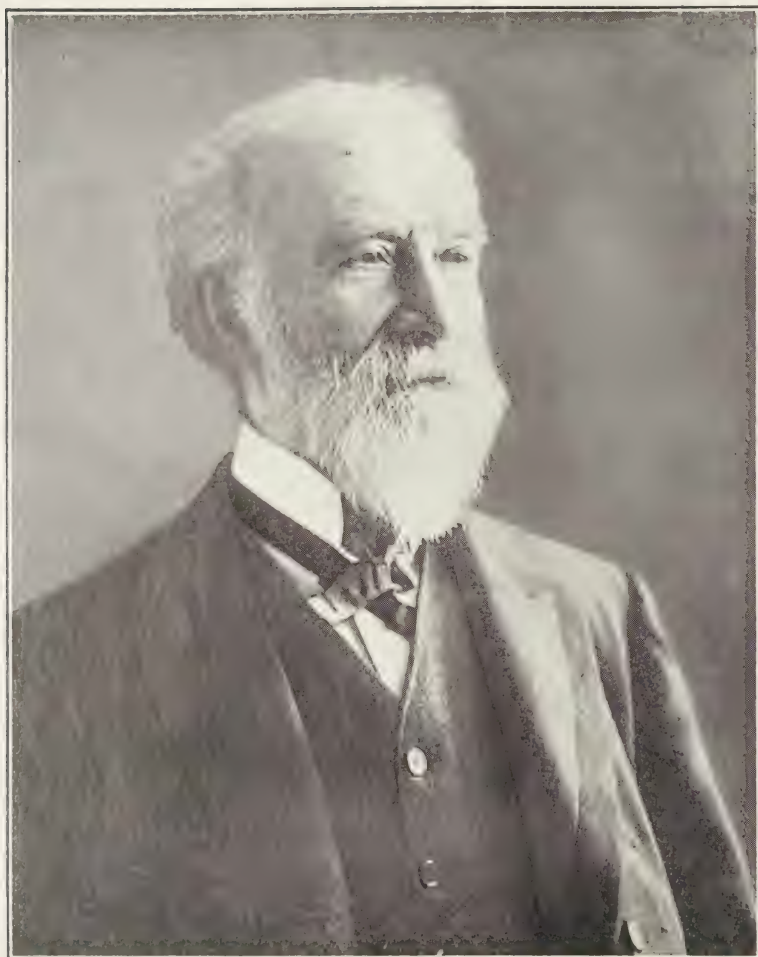
lawless assault on the high seas. President Wilson faced the issue squarely, in official notes firm and unmistakable in meaning, without bluster or declamation. What the reply of Germany will be is not yet known. The first impulse was apparently to flout the United States, in anger at the aid its manufacturers were giving the Allies, but more prudent counsels prevailed. It appears now as if the attempt would be made to drag out negotiations indefinitely, but unless assurance is given that the lives of United States citizens on their own ships or on genuinely merchant ships of the Allies will not again be put in jeopardy, the Washington government will be compelled to take decided action.

The resignation of Mr. Bryan ends an unfortunate experiment. He had done useful work in his day. For all his muddleheadedness and his shallow grasp of principles, he was on the right side in his attack upon the predatory methods of the great corporations in the United States. Much of the new spirit that reigns in that country, of the new interest in making popular control of government a reality, is due to him. Had it not been for Bryan, Champ Clark would now be President! But he was essentially an agitator, untrained for administrative work, and least of all for control of foreign affairs. In British and especially in Canadian politics men of no greater intellectual equipment and perhaps less sincerity of conviction have come to high place, but fortunately foreign affairs have been in abler hands, at least in recent years.

His task was made still more difficult because of his sentimental pacificism. If this war has shown anything clear, it has been that the ultra-pacifist who thinks that peace can come by voluntary disarmament of one power or by its refusal to fight under any conditions, is only second in his folly to the ultra-militarist who has preached that the way to secure peace is for each nation to make itself stronger than any other. Even in this field Mr. Bryan had done good service by securing the assent of Britain and France and many other powers to the principle of arbitration and investigation in a degree never before obtained. But in thinking that these principles can be applied to the *Lusitania* case he showed much confusion of thought. The time for arbitration is before war breaks out or after truce is declared; it would have been more desirable if a stay could have been secured in the Austrian-Servian dispute by Mr. Bryan's or any other plan. But it is not arbitra-

tion that is called for when a series of undoubtedly wrong acts are being perpetrated; the promise of the aggressor to cease is the only solution. Damage already done can be arbitrated, but only if further actions of a like kind are halted. Mr. Bryan's resignation has materially strengthened the administration both in the United States and abroad.

O. D. S.



SIR SANDFORD FLEMING, K.C.M.G.

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OUR LATE CHANCELLOR.

FOR thirty-five years the late Sir Sandford Fleming was Chancellor of Queen's University. He was one of "the silent men who do things." The motto of his family was "Let the deed show," and he lived up to it. The extent and character of the work that he wrought show more clearly than words what manner of man he was; and what is here written of him is intended not as a life-sketch nor as an appraisal of his achievements, but rather as a tribute to his memory, reminiscent of personal intercourse and expressing, however inadequately, the affectionate esteem in which he was held by all connected with the University.

Seventy years ago he came to Canada, a stalwart Scottish youth of eighteen, and there have been few whose lives have meant so much for the progress of our country. He brought with him some letters of introduction, among others one to Bishop Strachan, of Toronto, but the worthy bishop simply advised him to return to Scotland, so he sought his counsel no more. He brought with him also a spirit of sturdy independence and of untiring energy, a resolute will to shape his own course, a heart that would prove brave and cheerful whatever might befall him.

He used to recall with interest his early years in his birth-place, the "lang toun" of Kirkcaldy, where he attended the school in which Carlyle and Edward Irving had, in their youth, been teachers. He could not claim great progress in his classes until he took up mathematics, but when allowed to give up Latin for Geometry it seemed as if he had come into his own. While still a schoolboy he thought that the shoes made for him by the local shoemaker might fit him better if made upon a last more closely resembling the shape of his foot, so he carved out a last for himself. When, however, he took it

for inspection and, as he vainly hoped, for future use, the old shoemaker after careful scrutiny merely said, "Eh, laddie, ye ha'e na' a souter's e'e."

Before leaving Scotland young Fleming, in addition to his training in land-surveying and engineering, had acquired the love of solid reading and, although he did not take a University course, he made himself familiar with some of our best literature. He was early taken with Carlyle, and a number of Queen's graduates may remember a meeting of the Alumni Conference some years ago at which, after a visiting professor had given a lecture on Carlyle, the Chancellor delighted the audience with an account of a personal interview with the author of *Sartor Resartus*.

When he came to Canada his earliest work was land surveying, including surveys of Toronto, Peterboro and Coburg. Desiring to publish a map of Toronto which he had drawn with great care, and being unable to find a lithographer, he himself transferred the map to stone. This map is still preserved in the Archives.

The year of his arrival was marked by Government provision for a geological survey of the country, and a good deal of general survey work was being carried on; but it was not until five years later that the first railway in Upper Canada was opened, and only in 1852 was construction work commenced on the Grand Trunk. He had to wait for a time before the fitting opportunity offered; but it came, and he was ready for it. Among the incidents of those earlier years which it gratified him to recall was the part he took, when on a visit to Montreal in 1849, in saving the portrait of Queen Victoria from destruction at the burning of the Parliament Buildings in that city.

His first appointment in railway engineering was in connection with the Northern Railway, originally the Ontario, Simcoe and Huron road, now part of the Grand Trunk system. He became assistant engineer of this road in 1852 and chief engineer in 1857. While resident in Toronto he took a deep interest in the Canadian Institute, being connected with it from its foundation, in 1849, until the time of his death, and in its earlier years the active and efficient secretary. From time to time he contributed a number of valuable papers to the proceedings of the Institute, and several of his more important

projects were early submitted for the consideration of its members.

Mr. Fleming never took any active part in politics. Engaged for many years in Government service, he felt that it would be improper for him to become a partisan. None the less, however, he took a deep interest in matters affecting the public life of the country. To him it seemed clear that our present representative system needs to be greatly modified if the aims and benefits of government by the people and for the people are to be fully secured. The minority of voters, however numerous, is not adequately represented in Parliament. He tried, therefore, "to devise a scheme of electoral representation, by which the whole electorate may be equally recognized in one deliberative body and every elector may have an equitable share through Parliament in the general administration of public affairs." Like some others, however, who have wrestled with this problem, he found it difficult to persuade men that there was any practical injustice in the present party system, so that there was little response to his efforts beyond some academic approval of his views. At the same time it seems almost certain that this question of improved electoral representation must press for solution in the future, and it illustrates the Chancellor's breadth of sympathy and of vision to find him treating this subject with marked knowledge and ability.

He carried to more successful issue the consideration of some practical scientific problems. One of these was the selection of a prime meridian to be common to all nations in connection with the reckoning of time. Greenwich time had long been the standard time in Great Britain, but it was largely by his indefatigable efforts that influential individuals and scientific societies throughout Europe and America were induced to urge their respective Governments to adopt the meridian of Greenwich as the initial meridian common to all nations.

The working out of this change is illustrated in the notation of time on a transcontinental railway such as the C.P.R. It would be intolerably confusing to through travel to adjust the arrival and departure of trains to the correct solar time at every station along the line, and it would be almost equally impracticable to carry Halifax time right through to Van-

couver. The system adopted is to divide the entire country into five sections, according to degrees of longitude. Each of these sections has its own uniform time and in each the time is one hour different from that which prevails in the next section, so that in going westward you have Atlantic time at Halifax, Eastern time at Montreal, Central time at Winnipeg, Mountain time at Calgary, and Pacific time at Vancouver, there being thus five hours' difference between the time in the Atlantic section and that in the Pacific section. Of course, at each dividing line between the several sections it involves the keeping up two separate notations with one hour's difference between the two, but this is a very slight inconvenience compared with the great advantage secured in the general system of time-reckoning; and yet it required much persuasion to introduce the change, and Sir Sandford, who was mainly responsible for the new system, published many pamphlets before the public were persuaded to adopt it.

For eighteen years he made his home in Toronto, steadily increasing his reputation as a railway engineer, until in 1863 by the united action of the Imperial and Colonial governments he was appointed Engineer-in-Chief of the Intercolonial Railway, which was to connect Halifax with Quebec, the first link of a railway system that would extend from the Atlantic to the Pacific within British territory. Before entering on his new duties he refreshed his soul by revisiting his native land, his first return since he left it as a lad. To the close of his life he used to recall the memories of that visit and renew its bright experiences, made all the brighter by coming as a break in the strenuous work with which his years were being filled. He took occasion while in Britain to fulfil a request made by the people of the Red River Settlement, in urging the Imperial authorities to open railway communication between the Red River (now part of Manitoba) and the old Province of Canada. This was his first effort in the interests of the great prairie country with which he was years afterwards to be so closely connected, and although at the time it seemed ineffectual, yet it may have served to draw the attention of the Home Government to possibilities that should later on be realized in the West.

Returning from his visit to the Mother Country, he took up the great enterprise of the Intercolonial Railway. It was a

task that challenged and rewarded his skill, experience and courage, and he has himself told the story of it in one of the most masterly reports ever submitted to Parliament. In one of his books giving the record of a journey from Old to New Westminster, he draws a parallel between the life of the engineer and that of the soldier. "In both," he says, "privations and hardships are endured. In both self-sacrifice is called for. In both special qualities are demanded to gain desired results; and the possessors of them for a time obtain prominence, to pass out of mind with the necessity for their service, and to be forgotten and uncared for."

He was himself essentially a man of peace, although he raised a company of the 10th Royals, in Toronto, during the "Trent" affair; yet he had the qualities of a true fighter—strength, courage, self-mastery, tenacity, patience, cheerfulness, with a keen sense of honour. But his battles were hard fought victories over vast physical obstacles. He had a bold imagination combined with a ready power of cool and sober calculation, and he dared to picture to himself and to pronounce possible a railway spanning Canada from sea to sea, threading its way even through our western sea of mountains, which other great engineers before him had pronounced impracticable. Poet he was in the real sense of the word—a doer, a maker, a creator—for he could not only see bright visions but could give them bodily shape that others might see and enjoy and be blessed by them. And he had the power to tell the story of his battles, for he acquired a style of writing that made even dry details interesting, and in his reports one always finds, among other good features, the due acknowledgment of the work of other men, whether these had been earlier pioneers or fellow-labourers under his own direction.

During the earlier part of his connection with the I.C.R.—from 1863 till 1869—he made his home in Halifax, and although in the latter year he removed to Ottawa, yet he continued for the remainder of his life to have his summer home in the city by the sea, to which he was very strongly attached. That attachment was very specially expressed not long before his death in the gift to the City of Halifax of his extensive and valuable property, "The Dingle", on the banks of the North West Arm, to be used as a public park. It was on the highest point of The Dingle, a site most suitable for the purpose, that

he erected the unique memorial tower which commemorates the origin of representative government in Nova Scotia. From all portions of the Empire sculptured slabs were contributed for decorating the interior of this tower, and the structure stands not only as a memorial that Nova Scotia was the first part of the British Empire outside the Mother Country to enjoy representative government, but also as a permanent expression of the patriotic spirit that erected it. When Sir Sandford went to Halifax, the late Principal Grant was minister of St. Matthew's Church in that city, and there began the friendship between those two that grew ever stronger as life wore on. Forty years later when the Principal passed away, his old friend, under that sense of solitariness that comes with advancing age, remarked, "He was the last of my friends accustomed to call me by my first name."

Of the Intercolonial Railway which absorbed his attention during his residence in Halifax, no detailed account can here be given. When, on its completion, in 1876, he submitted to Parliament his report of its construction he wrote, "Thirteen years have passed since my first appointment as Chief Engineer—a duty assigned to me by the Imperial and Provincial Governments at the commencement of the survey. At that period, a long tract of wilderness separated the Maritime from the Inland provinces. The railway which now connects them, I may venture to assert, will rank second to none on this continent. In the embellishments of its structures it may be surpassed by the lines of the old world, but in the essentials of a railway it will, when entirely completed, have no superior. . . . It realizes the national aspirations of half a century by bringing within a few hours the old fortress of Halifax and the older Citadel of Quebec, and it must form an important section of the railway destined, ere long, to extend from East to West through the entire Dominion."

In 1871, while the Intercolonial was still under construction, Sir Sandford was appointed Engineer-in-Chief to conduct surveys for the Canadian Pacific Railway. If one wishes to form some idea of the labour involved in those earlier surveys let him read the report submitted to Parliament, in 1877, of the survey work conducted during the preceding six years. The country to be examined extended from the Ottawa Valley to the Pacific. It was divided into three sections, the Wood-

land, the Prairie, and the Mountain Regions. The Woodland, or Eastern Region, extended from Ottawa to Winnipeg; the Prairie, or Central Region, from Winnipeg to the Rocky Mountains; the Mountain, or Western Region, from the Rockies to the Pacific.

Regarding many portions of the country, especially in the Eastern and Western Regions, no information was available at the beginning of the survey. So far as known, for instance, no civilized man had ever yet passed from the Upper Ottawa through the intervening wilderness to Lake Superior. Even where some routes of communication had been opened, they could not be used for a railway line. The Central Region was already more familiar, as there were numerous prairie trails, but the whole vast expanse of country had to be gone over to determine the most practicable route. As for the Western Region, pass after pass through the several chains of mountains had to be examined and the possibilities linked up in order that some feasible through line might be discovered.

For those of us who have had no experience in prospecting and surveying, it is quite impossible to realize the labour involved in examining such a vast territory and determining, from all the mass of accumulated information, the most practicable route to be adopted. To read the detailed report of such a work increases one's admiration for the master mind that could grasp and solve the many problems presented by it, and at the same time deepens one's gratitude to the brave and patient workers who have made transcontinental travel possible.

In the second year of the survey the Engineer-in-Chief traversed the route from Lake Superior to the Pacific that seemed likely to prove the best for the railway. He took with him a small party, and the record of their journey is given in *Ocean to Ocean*, by Dr. Grant, who acted as Secretary. No other book in all our Canadian literature had such a wide and speedy influence. It was a revelation regarding the vast heritage into which as a people we had entered, full of just such information as we required, answering our questions before we asked them, lit up by the vision of the seer and the enthusiasm of the patriot, and fitted to quicken the heart-throb of every Canadian. The possibility of constructing the projected railway had been determined; it remained for the Par-

liament and people to fulfil the gigantic task. Years must elapse, indeed, before all details of route could be decided, and further years be spent in construction. Changes were adopted in the route from that first recommended, and the construction, instead of being carried on by Government, was entrusted to a Company. The Engineer-in-Chief resigned in 1880, but at the urgent request of the Directors he, again accompanied by Principal Grant, made the journey across British Columbia in 1883 to report on the southern route which had been selected. They travelled by rail to Calgary, the furthest point then reached in the construction, and with no little toil and hardship followed the course of the present line to the Pacific. As a member of the Board of Directors, Sir Sandford had the supreme gratification of being present when, on the 7th November, 1885, the last spike was driven at Craigellachie by his old friend, Sir Donald A. Smith (Lord Strathcona), and his early vision was realized of a completed railway crossing Canada from sea to sea.

In connection with the widely-extended and prolonged survey work to which reference has been made, and which was absolutely required before construction could begin, it deserves to be noticed, as illustrating his character, how the Engineer-in-Chief considered the higher interests of those under his command. He was a devout man, and he desired that others should have the freedom and benefit of those religious privileges which were so dear to himself. In his *Old and New Westminster*, in an account of his journey across the country in 1883, he writes, "In all well-ordered expeditions Sunday is a day of rest. . . . It is as if you held it a privilege in these remote mountains to pay homage to the lessons of your youth, not from the merely mechanical acceptance of them but from a heart-felt sense of their truth. . . . You seem as it were at such times only to commune with nature and to be free from all that is false and meretricious in our civilization. You are beyond the struggles and petty personalities of the world, and you feel how really and truly life is better and happier as it is more simple."

In harmony with this sentiment, at the outset of his arrangements for the C.P.R. Survey, he strongly desired that the men engaged in that work—some 20 or 25 parties, consisting of 20 or 25 men in each—should, if possible, have some form of

Sabbath service provided in which, if so inclined, they might unite. To this end he consulted with three clerical friends, representing the Anglican, Roman Catholic and Presbyterian Churches, who drew up for him a Service which they thought suitable for the purpose. He had it printed in pamphlet form and distributed among his various surveying parties. The men gratefully availed themselves of it and, after using it for over a year, asked that it might be enlarged and made more varied and comprehensive. This led to the issue of a small volume, entitled *Sunday Services for Travellers*, containing prayers, responsive Scripture readings and a brief selection of hymns. The little book, primarily intended for the Surveying parties, came to be used by others also, sometimes by visitors at summer resorts, and it even found its way to scattered hamlets in Australia.

Sir Sandford, while devoutly attached to the Church of his fathers, would have welcomed the use of an optional liturgy, feeling that great care should be taken in that which is the loftiest utterance of human sentiment, the public expression of united prayer to God. He compiled a small volume for family worship under the title *Brief Prayers for Busy Households*, and he took an active part, as a member of the Presbyterian Church Committee, in preparing a book of Aids to Social Worship. Only those who were most familiar with him could be aware of the strong faith, the steady spiritual force that sustained him amid the strain of life's activities.

He was always an ardent Imperialist, and any effort by which he could advance the interests of the empire was with him a labour of love. In this spirit he threw himself heart and soul into the task of securing telegraphic connection between Canada and Australia by means of the Pacific Cable, spending time and energy and much of his private means on its accomplishment. Whoever may have originated the idea and however many may have assisted in the project, the persistent advocacy of it and its final success were undoubtedly due to him. There were many difficulties to be overcome. Great opposition was shown by the Eastern Telegraph Company, which held a practical monopoly of telegraphic communication with Australia and was strongly intrenched among British capitalists. The Governments of Canada, Australia and New Zealand, as well as the Imperial Government, had to be per-

suaded into the adoption and support of the scheme. Details of route, of maintenance and of control had to be arranged. It required years of patient, unrelaxing effort before the dream was realized.

One instance may illustrate the spirit with which that effort was maintained. As the line was to be entirely British, the points of landing must be on British territory. It was necessary to secure a landing at some point between Canada and Fiji, and, as the Hawaiian Islands were not British territory, no place there was available for the purpose. The choice lay between Fanning Island and Necker Island, Necker being decidedly the more suitable of the two and, up to that time, a no-man's-land, unclaimed by any power. It would seem to be a simple thing, and legitimate as it was simple, for Britain to plant her flag on this uninhabited rocky island, but the British Government could not be persuaded to take this step. Months of fruitless negotiations were spent in the effort to secure this, until at last Sir Sandford, being reminded of the way in which the Island of Perim became British through the bold act of the Governor of Aden, resolved to try if private enterprise might succeed where the Government failed to take action. Accordingly he commissioned, at his own expense, a retired naval officer to go to Honolulu, charter some craft, either steamer or sailing vessel, proceed to Necker Island, hoist the British flag and thus claim possession for the Empire. The mission was to be a secret one, but the agent consulted in Honolulu was acting British consul there, and the officer commissioned by Sir Sandford was prevented from proceeding until permission had been given by the Imperial Government. That permission could not be obtained, so that the scheme for annexing Necker Island failed, and soon afterwards the Provisional Government of Hawaii took possession of it. Sir Sandford, somewhat disappointed, fell back upon Fanning Island, but there was something of the spirit of the Elizabethan empire builders in his effort to acquire the better landing.

The Pacific Cable, although in itself a great enterprise, was only part of a more comprehensive scheme which he advocated for telegraphic communication throughout the Empire. He was anxious to see a line laid from Western Australia across the Indian Ocean to Africa, and from Cape Town, by way of St. Helena and Bermuda, to Britain, thus completing

a world-encircling system that should at every point of land communication be on British territory. The scheme is not now likely to be carried out, as wireless telegraphy has so largely superseded ocean cables.

The Pacific Cable, however, serves only a part of the purpose contemplated by its chief promoter. Often while advocating it, and frequently since its completion, he drew attention to the great service it might be made to render in bringing Canada and Australia into closer intimacy. The cable is used for commercial purposes not more than six hours out of twenty-four. As it is maintained by the Governments of Great Britain, Canada, Australia, and New Zealand, might it not be used daily for transmitting press messages, conveying the latest news of general importance, messages compiled by duly appointed agents and available at a nominal cost for the newspapers of the countries concerned? The different parts of our Empire need to know each other more intimately. It should be possible to have this knowledge from day to day presented through the press at very moderate cost, and to this end the Pacific Cable might be of constant public service.

It was fitting that one who had achieved so much should be recognized by learned societies, and also by his Sovereign. Several distinguished Universities conferred upon him honorary degrees. Scientific Associations in Europe and in America enrolled him in their membership. The Government of Canada entrusted him with various important commissions. He was created by Queen Victoria a Companion of the Order of St. Michael and St. George in 1877 and a Knight Commander of the same Order in the year of Her Majesty's Diamond Jubilee.

But while Sir Sandford's name must for others be specially associated with the great enterprises which have been referred to, we at Queen's must always think of him as our own beloved Chancellor. He was elected in 1880, the Rev. Dr. Cook having been his only predecessor in office, and Queen's would have no other Chancellor as long as it was possible to re-elect him.

While Queen's delighted to give him the highest honour she could yield, he, on his part, greatly enjoyed his connection with the University. It brought him into very close association with his intimate and distinguished friend, Principal Grant. They had been like brothers from the old Halifax

days, when they were in their early prime. They were linked together by many ties. They had been fellow-travellers under conditions that gave them fullest knowledge of each other, and fellow-labourers in fields of work where frequently the one supplied what the other lacked. They differed widely in temperament, yet they had many qualities in common, cherishing the same lofty ideals of life and duty and equally devoted to Canada and to the Empire. Queen's was rich, passing rich, in having two such men, each preeminent in his own profession, working together in the fullness of their strength to promote her welfare, and successive generations of students felt the uplift of their character and life.

And the Chancellor enjoyed his connection with Queen's because of the opportunities it gave him of meeting with the Staff and students. It had always been a regret to him that he never had the benefit of a University training, but few men more completely made up by personal effort for that earlier disadvantage. He was a great reader, a well-balanced thinker, an extensive writer, and, although not accustomed to public speaking, he could express himself by his pen with rare clearness and force. His wide knowledge, his varied experience of men and of travel, and his kindly humour gave a distinct charm to his conversation, and his intercourse with members of the Staff of Queen's was to him a source of genuine enjoyment. His interest in the students made his visits to the University still more attractive to him. He frequently referred to the impression made upon him at successive convocations by the sight of so many young men going out year after year to face the conflict of life, and he was deeply affected by their respectful silence when he addressed them, knowing that in these later years his voice could not be distinctly heard in Convocation Hall.

But greater even than the pleasure of being closely associated in his office at Queen's with his dear friend, Principal Grant, and of enjoying intercourse with members of the Staff, was the satisfaction he felt in sharing in the work of the University. He appreciated the influence of a strong University upon the welfare of the nation. He recognized in what varied ways and to what a wide extent it touches the life of the people by training so many of those who must, in course of time, affect public opinion and public conduct. He felt that it

was well worth while for any man who cared for his country to do what he could for the efficiency of some one of its universities, and circumstances had led him to cast his contribution of service on behalf of Queen's. The extent and value of that contribution must be measured not by material standards. Tangible gifts, however great or frequent, are not the greatest of a good man's benefactions. Nobility of character, purity of conduct, breadth of sympathy and unselfishness of service are more precious and more powerful as affecting the spirit of a University than gifts of money alone. And these were brought to bear by the Chancellor in affecting the spirit of Queen's. We cannot measure in this respect the debt we owe to him, but we gratefully recognize it, and so long as Queen's endures his name will be remembered and his memory revered. "Know ye not that there is a prince and a great man fallen this day in Israel?"

DANIEL M. GORDON.

SIR SANDFORD FLEMING.

OF a truth Death is no respecter of persons. The high and the low, the rich and the poor, the wise and the foolish have all, and all in the same way, to do homage to that great and universal power which removes all distinctions and levels all inequalities; and the most succinct and general comment that can be made upon it was made some thousands of years ago, when it was said that "man goeth to his long home and the mourners go about the streets."

One by one, every man goeth to his long home and his place in the community must be taken by another. And although it is often said that no man is so great, or of such importance in the world that another cannot be found to take his place and fill his position, this statement is true only in part. Human beings are the elements from which is built up the great fabric of our civilization, and as no two human beings are exactly alike, so no person can exactly fill the place made vacant by the death of another. And this fabric of our civilization is but a great piece of patchwork which is continually varying its figures and its designs as the years roll by, and one actor follows another on the great stage of the world.

The foregoing thoughts have been suggested by the recent death of Sir Sandford Fleming, one of the world's leading engineers, and for the last thirty-five years the active and efficient Chancellor of Queen's University.

Sir Sandford enjoyed a length of years considerably above what is allotted to the average man, and he had passed well into the winter of life before the great message came to him. And although for some years past he was naturally failing in physical energy, yet his intellect was clear and active, and his presence amongst us was an inspiration to those who were preparing to follow in the sphere of his principal activities.

In relation to the death of a person who has lived to a good old age and who has finished a noble life's work, we can scarcely say that the mourners go about the streets. But while we miss him, as we undoubtedly shall, we should be thankful that we enjoyed his presence with us so long and in the midst of such pleasant and profitable associations.

Young Fleming was not educated along the modern lines of engineering—lines requiring a practical and sufficient knowledge of a goodly portion of the advanced theorems of mathematics and physics. And it is doubtful if, with his comparatively limited knowledge of these subjects, he would have been competent to attack successfully some of the modern engineering problems.

But what he lacked in the higher fields of engineering knowledge he quite fully made up in his untiring persistence, his love of work, and his genius for taking pains. And after all, in the end, these things count for more than mere brilliancy of ideas with an insufficiency of will power for putting them into effect.

In his earlier professional practice as well as in later life he was governed largely by the principle that whatever is worth doing is worth doing well. And in the permanent products of his activity a characteristic feature is the amount of accurate detail which he invariably put into them. The principal work of his life was as a Railway Engineer, and his name must always be associated with those great and successful constructions, the Intercolonial, and the Canadian Pacific railways.

When every circumstance is considered, there can be no doubt that the Canadian Pacific is the most wonderful railway structure ever built. And any one who travels through the Rocky Mountains by this line, and who can form any comprehensive idea of the character and amount of the work and thought and dogged determination required to stretch those unending tracks of steel through valleys and ravines and passes—along the beds of rapid streams and skirting the acclivities of snow-capped mountains—passing by placid lakes and falling waters and sparkling glaciers—over a thousand miles of the most unique and terrible, and yet the most sublime and interesting wilderness in the world—must come to the conclusion that in spirit Sir Sandford might say with Sir Christopher Wren, *si monumentum requiris circumspice*.

But Sir Sandford's energies were far from being exhausted by the completion of one of the great railways of the continent. In fact, the work that he next undertook was, in its effect upon the railway and travelling world, of more importance than the building of any single railway could possibly

be. That work was the systemization of railway time. To his energetic mind this was quite a natural outgrowth from the completion of a railway crossing the continent from east to west.

At the period when the subject attracted his serious attention it was not unusual for certain railway stations to contain two or even three clocks, set to different times to indicate the arrivals and departures of trains going in different directions according to different time tables. For every railway running east and west took as its running time the local times of the different important cities upon its line, so that one might arrive at a station according to one time table and leave according to another time table differing considerably from the first one.

Now this unavoidable confusion, which is inherent in the fact that the local time changes at the rate of one hour for every 15° of longitude which is passed over in going east or west, cannot be wholly overcome by any contrivance whatever. And Sir Sandford's work consisted in so systemizing this variation in time as to avoid all unnecessary confusion and make the unavoidable changes as simple as possible for both the railways and their patrons.

This time variation affects only railroads running east and west or crossing numerous terrestrial meridians, and of these the Canadian Pacific is one of the most noted. In this improved time-system the whole earth is divided into crescent zones running from pole to pole and bordered or bounded by meridians 15 degrees apart, and the meridian of Greenwich in England, as the basal meridian, passes through the middle of the first zone. In America we have five of these hour zones, and the respective times are known as Intercolonial time, Eastern time, Central time, Mountain time, and Pacific time. All places in the same zone have the same time, and the time changes by one full hour as we pass from any zone into an adjacent one.

The establishment of such a system became possible when the railways and the people became willing to sink all personal, local, and even national feelings in regard to systems previously in use, in favor of one universal plan which would prove to be for the general good. And the convenience of the system in the whole range of railway usage has amply justified

its adoption, and shed honor upon the mind which conceived it and worked hard for its general acceptance. And although it was opposed at first by a few disgruntled peoples who were over-zealous for the honor of their nationalities, yet it has now come to be almost universally adopted under the name of *standard time*.

It will be understood that standard time is not in general the local or true time of a place, although these two can not differ from one another by more than 30 minutes. As a consequence the astronomer has no use for standard time except on the odd occasions when he is travelling by railway. But astronomers are few and the travelling public are many, so that the system brings the greater good to the larger number.

But so far from opposing the introduction of standard time into the list of times already in use, the astronomer favored it in as far as he could by changing the beginning of the astronomical day from mean noon, as it had been for a very long time, to mean midnight. For him to go farther than this, and to adopt standard time in his astronomical work would involve endless confusion and would therefore be a practical impossibility.

Another of Sir Sandford's schemes for the welfare of the British people, and to which he gave freely of his time and labor, was the connecting together of all the British Colonies by a British owned or a British controlled set of cables. This he did not live to see fully accomplished, although the completion of the cable between Canada and Australia in 1902 was the forging of one link in his contemplated chain.

To his talents as an engineer and a man of practical scientific ideas, Sir Sandford added those of an author whose writings were of a choice and explicit character. He could not only build great railways, he could also write clear and excellent descriptions of them and of the circumstances which led to their construction.

In his many short addresses as Chancellor of Queen's University his matter was always first class in ideas and in the language in which his ideas were clothed. But Nature, so prodigal in these her gifts to the subject of this article, could not shower all her blessings upon any one individual, and so she denied him the voice of the orator.

His chief publications are: *The Intercolonial: a History* (Montreal and London, 1876); *England and Canada* (London, 1884); and numerous pamphlets and magazine articles on scientific, and political subjects.

"Mark the perfect man and behold the upright; for the end of that man is peace."

N. F. D.

PATHFINDERS.

Across the centuries we see them go,
Each one on toilsome exploration bent;
Each one upon celestial questing sent—
As they who sail horizons far below,
Or plant a pennon high on fields of snow,
Or those whose years are in lone service spent,
Frontiersmen on the trackless continent
Of the Unknown! What gifts can God bestow
Greater than these? Elate, they travel on,
Beckoning to those who lag so far behind.
They hail new days—these harbingers of dawn,
Outriders of the Truth, brave, unconfined
To Custom's pale. Ah! not till they are gone
Does the world feel that it has been unkind.

ALEXANDER LOUIS FRASER.

The Manse,
Smith's Falls, Ont.

NOTES ON LOBSTERS AT LONG BEACH POND, N.S.

Abstract of two reports to the Biological Board of Canada for the years 1914-1915.

Location.

LONG Beach Pond is an elongated area of about five acres of sea-water at low tide and seven acres at high tide. It is situated four miles from the south-west end of Digby Neck, Digby County, Nova Scotia.

The sea wall which separates the pond from St. Mary's



FIG. 1.

Long Beach Pond viewed from the north-east end. In the foreground can be seen first the mess-house; beyond this, the cement pond; further away is the larger part of the pond. In the distance can be seen the engine house and plant for rearing lobsters.

Bay on the east is nearly 2500 feet long and varies in width from 20 to 50 feet on top. It consists of boulders of all sizes up to about 100 lbs. intermixed throughout with sand and gravel. As a consequence sea water enters and leaves the pond along nearly the whole length of the sea wall.

The tide rises and falls in the pond between five and six feet at the lower or south-west end, less, of course, at the upper or north-east end, and is later than the rise and fall in St.

Mary's Bay by about two hours. This delay in rise and fall is due to the obstruction which the sea wall offers to the ingress and egress of the sea water.

In some respects the most important portion of the pond is the cement pound, so called because enclosed on all sides by cement walls. It was constructed by the Department of Marine and Fisheries for the purpose of impounding berried lobsters or holding them during the open season, the intention being to liberate them again at the beginning of the close season so that they might hatch their eggs naturally in the sea.

The Pound a Sanctuary.

The acquisition, not of one pond but of a number of ponds, by the Government should need no defence. They should be secured as sanctuaries for the protection of berried lobsters. It looks as if the lobster were doomed. The catch in proportion to the men and gear employed in it has been steadily falling off in recent years. The canneries are accepting thousands of "tinkers" or half-grown lobsters, and as long as the canneries will buy, the fishermen will continue to catch and sell these immature animals. It is, of course, illegal to sell or buy female lobsters with eggs on them; but it is an easy matter for the fishermen to scrape off the eggs. In proportion, therefore, as "tinker" lobsters are destroyed and eggs are removed from the mother animals, in just that proportion will the supply of lobsters be cut off in the future.

As against this wastage of lobster life the close season counts for something and so do the hatcheries. As a means of replenishing our depleted lobster waters, however, the hatcheries have been long known to be unsatisfactory. Moreover, the expense of running them is great. The mother lobster can hatch out a higher percentage of eggs than any artificial hatchery can. She can in addition distribute the young in the sea more widely, more uniformly, and more safely than any employee of a hatchery.

Why not give the mother lobsters a better chance? Let the Government purchase or expropriate a sufficient number of ponds; let the fishermen be paid the same price or even a higher price for "berried" lobsters delivered at the ponds as for male adults delivered at the canneries; let these mother lobsters remain in these ponds or sanctuaries during the open



FIG. 2.

Mother lobsters carrying newly extruded eggs. These are attached to the paired swimming feet on the under surface of the abdomen. When carrying eggs, the mothers always bend the latter part of the abdomen and tail under the body so that the eggs are as well protected as if carried in a covered cup. In the illustration the abdomen is extended so as to expose the eggs to view.

season, and when the close season begins, let them be returned to the sea to hatch out their eggs in their natural way, and it may fairly be claimed that the Government is taking at least one more efficient step towards the protection of the lobster industry.

A five acre sanctuary is, however, a pretty large area over which to allow lobsters to roam if they are to be fed regularly, kept under proper observation, and if it is desired to recapture

and transport them to some other area at a later date in the summer. Supervision and care-taking over a large area must be limited in some way, or else the expense of running the pond would be very great. To reduce the area under supervision the Fisheries Department proposed that the north-east part of the pond should be enclosed by cement walls, making what may be called a cement *pound* within the natural pond. To ensure that animals confined in it should have an adequate supply of fresh sea water the pound was connected with St. Mary's Bay by an earthenware pipe twenty inches in diameter. When the tide outside rose higher than the bottom of the pound, sea water flowed into it; when the tide fell outside, sea water flowed from the pound into St. Mary's Bay. The scheme looked ideal on paper; but the cement pound as it existed in the summer of 1914 was quite useless, because it would not retain water as planned.

Early in March, 1914, the Fisheries Department suggested to the Biological Board of Canada that the pound should be used for the purpose of rearing lobster larvæ to the lobsterling stage, that is, the stage at which young lobsters cease to live at the surface of the water and descend to the bottom. The Board acquiesced in the suggestion and the writer was asked to carry on experiments at the south-west



FIG. 3.

The rearing plant, consisting of (a) walk on the left; (b) engine house; and (c) four hatching boxes, only two of which are visible. The shafting and gearing may be seen on top of the superstructure; the boxes are raised out of the water in order to be cleaned and repainted before a second hatching is begun.

end of the pond in accordance with what is known as the Wickford plan.

The Wickford plan of rearing lobsters was the result of eight or ten years of experimentation by Professor A. D. Mead and his assistants working under the auspices of the Rhode Island Fish Commission. Up to 1898 nearly all efforts to increase the lobster supply artificially were limited to hatching lobster eggs in jars.

Now lobster hatching must be sharply distinguished from lobster rearing. Just as the hatching of chickens is a different process from the rearing of chickens, so the hatching of lobsters is quite a different matter from the rearing of lobsters, the former process has been carried on in our Dominion hatcheries since 1891. Hitherto our hatcheries have confined their efforts to scraping the eggs from the abdomen of the mother lobster, placing them in jars of well aerated water, and, when the young have come out of their "shells", emptying them into the sea. Millions of young lobsters have been hatched in this manner every year since 1891.

But the rearing of lobster babies for three or four weeks before putting them into the sea is the main feature of the Wickford system. In this system the mother lobsters do the hatching just as naturally as they hatch the young in the sea. The only difference is that in the Wickford plant the mother or berried lobsters are placed in large hatching boxes 10 feet long by 10 feet wide and 4 feet deep, set down in the sea about $3\frac{1}{2}$ feet. The water in these boxes is kept aerated by revolving paddles. The animals are shaded by canvass covers and regularly fed. You may call these boxes the "nests" of the mother lobsters if you like. At any rate they serve the same purpose as nests do in the rearing of young birds.

Every evening, especially if the weather is fine and the eggs ready to hatch, the mother lobster may be seen moving to and fro those parts of her body to which the eggs are attached, and presently a considerable number of the young escape from their "shells."

These young are removed from the hatchery box to the other boxes, called rearing boxes, of the same size but with different length of paddles revolving in them. The "babies" are dipped up with shallow dip-nets made of cheese cloth, and are usually counted with the aid of an automatic counter. As

many as 25,000 may be put into a rearing box; but at Long Beach we never transferred more than 15,000, and generally only 5,000 to 8,000, as we were anxious to rear quality rather than numbers during our first season.

With the transfer of the young, or larvæ as they will often be called, to the rearing boxes, the real work of rearing young lobsters begins. Feeding the larvæ is perhaps the easiest part of all. At Wickford they are fed chiefly upon hens' eggs, scrambled and pulverized; but clams and fish finely shredded are equally good.

Three big difficulties confront the operator: (1) the aeration of the water in the rearing boxes; (2) the prevention of cannibalism among the larvae; and (3) the spread of what may be called an infectious disease.

The aeration of water in the boxes in which lobsters, young or old, are kept is just as necessary as fresh air is for human beings or for domesticated animals. In fact, the aeration of water for aquatic animals corresponds precisely to ventilation for terrestrial ones; for, just as fresh air must be admitted to our houses and frowsy air allowed to escape, so the stale sea water in the hatching and rearing boxes must be replaced by fresh sea water, if the lobsters are not to be smothered for lack of oxygen.

As to cannibalism, it is a well known fact that the younger and weaker larvæ are frequently eaten by the stronger and more active ones. The more the larvæ are crowded together, as they must necessarily be in rearing boxes, the greater the extent to which the habit prevails. Lack of food tends to promote the habit as one can easily understand. If, however, the larvæ are kept moving about rapidly in the water of the rearing boxes, they are to some extent kept separate from each other and cannibalism is much less common. Aeration of water and reduction in cannibalism are both controlled to a very considerable extent at least by the rate at which the water circulates in the boxes.

Perhaps the greatest difficulty of all is the prevention of disease. Just as human beings are killed by infectious diseases like measles, scarlet fever, diphtheria, smallpox and consumption, so our first batch of 40,000, as well as our second batch of 30,000, were nearly all attacked and killed by infectious diseases.

The young of nearly all animals are more liable to disease than the adults. Only about three babies out of every four grow into men or women. It is the same with lobsters. Only one baby lobster out of about 15,000 grows into an adult. The inexorable forces of nature in the shape of cold, famine, and disease kill off the young by millions.

Whence came the parasitic plants from the growth of which our larvæ died? The answer to this question lies at the very root of our failure to rear larvæ. Did they come from the pond water, or did they come from the mother lobsters? A physician when looking for the origin of a case of scarlet fever would first ask whether any other member of the family had previously suffered from the disease. If not, he would look for some point of contact between the patient and some outsider who had been previously ill with the disease. Similarly, the staff at Long Beach cast about for the possible source of infection. Very early in our first experiment the microscope revealed the presence of minute plants called diatoms on the limbs of the larvæ. Later on, the growth on the limbs became so thick and "fuzzy" that anyone could recognize it with the naked eye, once it had been pointed out.

Where did it come from? Search under the microscope among scrapings taken from the legs and "feelers" of mother lobsters showed the presence of four kinds of parasitic plants. Here then was one possible source of infection. In hatching out their eggs the mother lobsters may have transferred the parasites to their young, just as a human mother may give an infectious disease to her child.

The other source of infection was, of course, the sea, or the pond water. In order to determine whether the parasitic plants came from the pond water, or from the sea, tow-netting was carried on (*a*) in St. Mary's Bay, and (*b*) in one of the hatching boxes which had been raised, cleaned and repainted. The examination of the material obtained in this way as well as the descriptions of the structure and life history of the diatoms and fungus found on our larvæ will be the subject of a report by Professor MacClement.

The cement pound though of no use as a location for a rearing plant of the Wickford type may nevertheless be utilized, I believe, for another purpose altogether. If a sufficient depth of water can be retained in it from one high tide

until the next, if shelters are provided for the animals, and if they are properly cared for and regularly fed, the pound may be used as a mating ground for commercial lobsters.

That there is need of a restricted ground for mating purposes appears to be clear from the following facts. Only 10 or 12 per cent. of the female lobsters caught along the Massachusetts coast are berried. In St. Mary's Bay and in the Bay of Fundy the percentage is much less. Why should not the percentage be about 50% in both places, if the natural habit is to lay eggs every second year? The explanation appears to be this: the mating of male and female appears to be a matter of mere accident. They are both intensely local in their habits, leaving their own shelter, or home, morning and evening, and returning again after a brief search for food. If a female does not chance to meet a male, her eggs are not fertilized and can produce no larvæ.

The fewer lobsters, therefore, and wider the area over which they are distributed, the less the chances are for mating and the fewer the numbers of berried lobsters.

As showing how restricted grounds may promote mating and, therefore, increase the number of berried females, the following facts appear to be significant. After the close season opened in June (1914), the Fisheries Department sent 62 commercial lobsters, 47 females and 15 males, to the cement pound. These were dipped up and examined about once a week. Before our plant closed (Aug. 22nd) no fewer than 19 out of the 47 females had extruded eggs. Not counting 7 of the females which were young and under $9\frac{1}{2}$ inches in length, the number extruding eggs (19) would amount to nearly 50%, a most extraordinary high percentage. A few eggs were removed from each of the nineteen females and microscopic examination showed that most of the eggs were developing normally. Examination of the remaining females in September showed that 64% of them had "laid" eggs.

To realize how greatly the number of berried lobsters might be increased as they were last year in the pound from 1% to 64%, we have only to consider how rapidly a farmer could increase his poultry if he bred from 64 hens out of 100 instead of from one hen. He might use a hatching apparatus (as we do for lobsters) and a rearing machine also, if there is such a machine for chickens; but the increase in his poultry

would be slow indeed compared with what it would be if he bred from 64 mothers in place of from 1. If we could come anything near to increasing our berried lobsters from 1% to 64% we might burn down our lobster hatcheries and never notice the loss so far as the lobster industry is concerned.

Of course, there may be other causes at work besides lack of facilities for mating to account for the small number of berried females. If so, these causes must be discovered and, if possible, removed. But, at any rate, no one can be blind enough to overlook the significance of the mating experiments of last year and this.

The Every-day Life of the Lobster.

While our lobster rearing operations at Long Beach Pond both last year and this resulted in failure, it cannot be said that the two seasons' work was entirely barren of results. In addition to the observations which have been made on the mating of lobsters, and which it is hoped may prove even more useful to the lobster industry than any success which might have been achieved in lobster rearing, we have been able to make some contributions to our knowledge of the every-day life of the lobster.

Very early in our operations of this year it was decided to use but two rearing boxes instead of four. The other two were fitted up with shelters or nests for the study of adults. Observations were made every day from July 20th to August 6th, when the animals had to be removed. The excessive leakage of water from the pound left our boxes resting in the mud and contributed to the death of several adult animals through the lack of aerated water.

The Cleansing Posture.

When performing certain definite functions, the adults took up certain appropriate postures. One of these may be spoken of as the cleansing.

In the case of lobsters which had wintered in the pond or pound, one of the first things to attract attention was that within a week after they had been placed in the rearing box, their appearance had changed very much for the better. No lady in the land could spend more time on her toilet than these

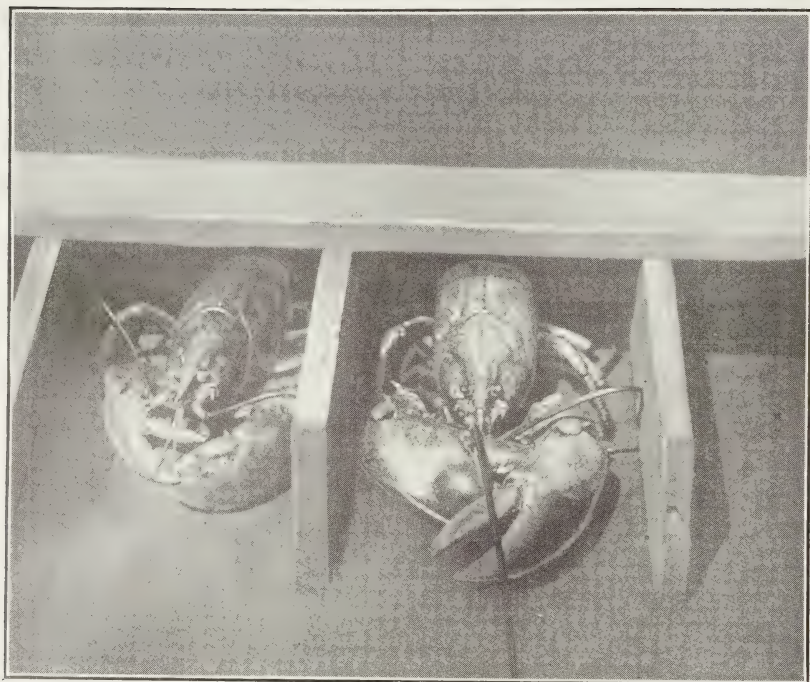


FIG. 4.

Two lobsters resting in their shelters.

lobsters did in cleaning themselves. They did not, of course, wash, massage, paint, or powder their faces, nor did they curl their hair; but they did spend days in attempts to free themselves from the excessive growth of algæ which covered almost every part of their body.

At first they ate voraciously; later on, much more moderately. Their only toilet instruments were the opposable "thumb and finger" (pincers) of their walking legs. Every part of their body which could be reached by these appendages was carefully picked over. It was no uncommon thing to see a lobster raise the first pair of walking legs over the great claws and clean the rostrum and antennules. The antennæ (feelers) would be grasped by the pincers and drawn through between the "thumb and finger," thus stripping off the algæ and dirt, in much the same way as a person might strip off the excess of dirt from a string by drawing it through between his thumb and finger.

When thus cleaning themselves the animals rest almost entirely upon the tips of their great claws and the telson which is bent at right angles to the long axis of the body. The middle region is arched slightly upward, the walking legs being left almost entirely free for cleansing movements.

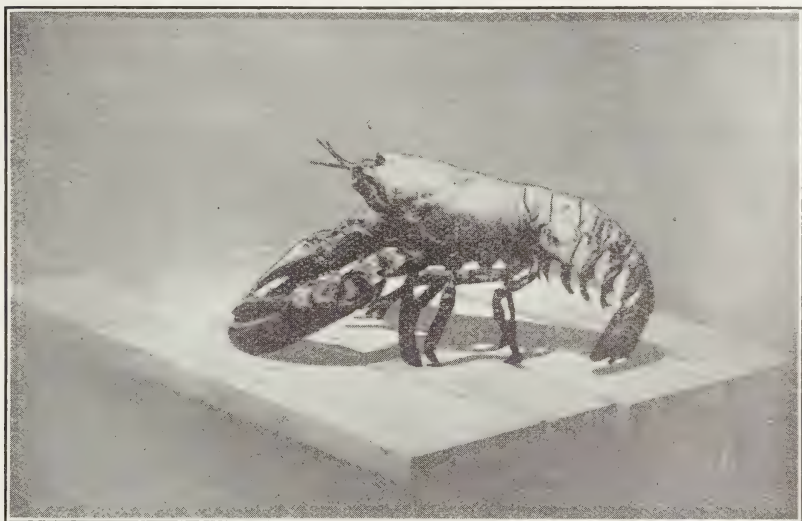


FIG. 5.

This illustration is from a lobster cast which has been shaped to resemble the posture of a mother lobster when hatching her eggs. The swimmerets are visible under the abdomen and these are moved gently backwards and forwards in the water so as to assist in liberating the young from the "shell." This same posture is taken when the animal is cleaning itself.

The Hatching Posture.

This posture has been frequently described and does not differ from the cleansing one excepting that the animal rests on its walking legs as well as on its great claws and telson. The movements are limited to a gentle swaying backward and forward of the swimmerets, evidently for the purpose of assisting the fry to liberate themselves from the egg capsule (shell).

Egg-laying Pasture.

The egg-laying posture as we saw it is different from that described by Anderton. The general position is that of a more

or less erect frog. The abdomen is bent completely under the body, and the broad tail is well spread out on each side so as to form an almost perfect cup. The anterior part of the body is inclined at an angle of nearly 45° through the animal resting on the tips of the great claws. The posture is such as to allow the eggs as soon as they leave the orifice of the oviducts to fall by gravity over the receptaculum seminis and drop easily and naturally into the abdominal cup. After the eggs had filled the cup, the female turned gently on its back for 15 or 20 minutes and remained almost motionless, the walking legs only moving backwards and forwards at long intervals. During this quiet period the egg-glue was apparently hardening so as to fix the eggs to each other and to the hairs of the swimmerets.



FIG. 6.

The egg-laying posture.

That the egg-glue requires time to harden in the water was demonstrated by the fact that one female which was lying on her back after egg-laying was dipped from the box and and righted in position. As a result nearly all her eggs dropped off on the board on which the observer was standing.

The Resting Posture.

This is the posture which the animal naturally adopts when left to itself in a crate, box, or compartment, and usually after being fed. If there are many animals together, they will often take up this posture in one corner of their enclosure, one on top of the other. It is their usual posture in the shelters.



FIG. 7.

The resting posture. From a photograph taken under water.

Fighting Posture.

There is nothing new to describe about this posture. Most people who have watched lobsters removed from the water have seen them elevate their great claws, open their scythe-like jaws, and otherwise adopt a threatening or defensive attitude. It is the regular pose of the lobsters which carry eggs and of the male lobsters towards each other. The new thing to us was to notice how the males recognized each other. Time after time we have seen two males pass females without adopting any belligerent attitude; but as soon as they approached each other "squared off" for a fight. Though the males are generally restless—the larger ones chasing the smaller—we never actually saw one injure the other.

The antennae and antennules are often bitten off and eaten when the animals are confined in crates. Less frequently, parts of the walking legs are eaten, but whether from hunger or as the result of fighting could not be determined. Only once did we find a male mortally wounded over the heart by the great claw of another lobster.

Annual Spawning.

Contrary to the accepted idea that lobsters spawn only every two years, we discovered 9 females this summer which had extruded fresh spawn and which had extruded spawn in 1914, carried it over winter and hatched the eggs in June, 1915. There is no doubt that these nine females spawned two years in succession. More evidence on this subject would have been available only for the fact that five or six escaped from our enclosure and became lost among other lobsters.

RUSSIAN SCHOOLS AND SCHOOL BOYS.

THE problem of modern Europe is Russia and the problem of Russia is education. On education, it is now evident, must depend any considerable advances in political, economic, or social developments such as are eagerly advocated and generally expected. A free state must depend upon a free school. Competent workmen must be trained. To rise above the simplest forms of social development a people must be able to read and write. What are the prospects for universal education in Russia?

Until very recent years it has been difficult for a foreigner, interested in Russia and its people, to get information that was unbiased and that showed sympathetic insight into the daily life and manner of thought of Russia's millions. True, there were books on Russia but they dealt mainly with political conditions and were almost entirely the voice of protest. But we wondered if the writers were giving us an accurate knowledge of conditions that would have seemed to the average Russian to concern the really vital problems. The typical Russian was a peasant, living on the land, and he had none to speak for him. We were hearing the voice of the *intelligentsia*. Eighty-seven per cent. of the people were peasants living on the land.

The interest of Western peoples in the progress of Russia has been an affair of recent years. It has been marked by the translations into the languages of Western Europe of works of the masters of Russian literature, while many descriptive works such as those of Mr. Stephen Graham and Mr. Maurice Baring present to us fairly and sympathetically the Russian peasant and his problems. The special problem of education in Russia is now for the first time dealt with in detail in an interesting and voluminous special report of the English Board of Education.

In any attempt to estimate conditions in Russia one must be cautious of applying the language of political and social conditions in the Western world to describe conditions in Russia which finds the origins of its popular culture rather in the East than in the West. Present conditions cannot be ade-

quately explained without some references to these origins. Our interest in what Russia is or has been is, however, less than in what it shows promise of becoming. We are apt to think of Russia as a backward state, moving slowly and painfully, probably toward the goal of democracy. Yet we cannot overlook evidences of her capacity for rapid and tremendous change. We remember the emancipation of the serf of 1861, when by a stroke of the pen twenty million slaves became free men and landowners. As rapid and effective was the regulation which in a day put the whole of Russia under prohibition. Where that sort of thing can be done, it would be rash to assume the usual limits to the possibilities of rapid reform. Russia as a nation is only beginning to find itself. Few nations have changed more with respect to political and social conditions in the last sixty years.

Popular education in Russia may be said to have had its beginnings in the primary school law of Alexander the Second in 1864. The serfs had just been liberated, land had been redistributed, local self-government had been attempted through the zemstvos. It became obvious at once that the successful working of the new machinery must depend on improvements in the education of the people. New economic conditions too were made possible by the abolition of serfdom which made it easy to move labour from place to place. So arose a demand for trade schools, technical schools, professional schools. Higher education henceforth was to train *men*, not merely to prepare them for the civil or military service of the state as Peter the Great had desired. The results were marked. In 1861 less than one per cent. of the entire population was under instruction. Now forty per cent. at least of the younger generation can read and write. In 1911 there were over one hundred thousand primary schools in Russia, with an attendance of approximately 6,500,000 pupils; nearly a third of the children between the ages of eight and eleven were attending school. In 1910 the total amount of government expenditure for education had doubled in six years.

An outstanding feature in the development of primary education in Russia has been the important part played in it by private social initiative, all, of course, under the control of the state. Primary schools are at present organized for the most part locally by the zemstvos in the country, by the muni-

cipalities in the town, or by the church which maintains a system of schools, side by side and practically competing with the schools of the zemstvos or by private enterprise.

The most characteristic feature of the Russian primary schools, whether under the control of zemstvos or church, is its close relation to the religious life of the people. What the Russian peasant most values in school education is the ability to read religious books in Russian, to read the gospels in Church Slavonic, and to join in the church singing. As education in Russia proper is nowhere compulsory, the school must suit the peasants or they will not send their children. Accordingly we find the following distributon of hours weekly representing the work of the average primary school: Religion, 6 hours; Church Slavonic, 3 hours; Russian, 8 hours; writing, 2 hours; arithmetic, 5 hours. Total, 24 hours. The programme strikes us as being a very modest one, but to understand it fairly we must examine the conditions under which the Russian schoolboy does his work.

The Russian schoolboy lives in the country; his people are poor and require his assistance as soon as it can possibly be given. School is held, therefore, only in the winter when he cannot work on the land. In winter the climate is cold, the snows are deep, the roads are bad; population is sparse, and distances are great; he cannot begin to go to school until he is eight years of age, and few can be spared after they are eleven. The regular course of the country school is, therefore, three years and they are three short years, never more than one hundred and forty days. His school is a winter school. For these reasons the country school often provides some sort of lodging accommodation so that the boys may remain over night. Thus in many cases the pupils actually live in the school bringing with them a week's food at a time.

But the slight opportunities of the Russian schoolboy are made up for by the eagerness with which he makes the most of them and by his comparative maturity when he begins his work. Mr. Thomas Darlington, the author of the *Special Report* referred to, quotes an eloquent and pathetic passage from M. Rachinski, who has played a leading part in Russian educational movements in the last quarter of the nineteenth century:

"The Russian boy entering a rural school in his eleventh year has little in common with a child of the same age belonging to the cultivated classes. He has never yet set eyes on a primer, but he knows well the alphabet of life. He has already tasted much unchildish sorrow, has already been a sharer in many unchildish labours. By the time he could barely stand firmly on his feet, he has been entrusted with the nursing of a younger brother or sister. All our country children, boys as well as girls, have passed through this nursing experience. On the threshold of conscious life there is laid upon them the most awful of responsibilities—responsibility for the life of a helpless, beloved, importunate creature, who cannot exist without their constant care. The mother, of course, is harrowing or ploughing, mowing or reaping. As soon as the signs of physical strength appear, tasks beyond his strength are laid upon the boy, tasks connected with responsibility for the most valuable portions of a peasant's stock—the cattle and the horses. He is an active participator in all the labours and cares of the family. In the midst of this heavy, feverish toil there is no possibility of hiding from him any of the dark or repulsive sides of life. He learns everything, not from facetious stories, but from bitter personal experience. He sees death at close quarters in all its terrifying details, in all its mysterious greatness, and learns to look upon it simply and soberly, with humility and hope. By the side of a five-year-old child of the educated classes he is an ignoramus, but he is immeasurably riper for contact with life than a youth of twenty years who has been delicately nurtured in a wealthy, cultured family.

"To go to school is a delight to him. There awaits him a life of comparative comfort and ease, free from all labour, physical or intellectual, which is beyond his powers—there awaits him the luxury which is the necessity of childhood, but for which there is no time in his home life—the luxury of constant attention and care from his elders. But he brings with him the feeling acquired in the home of responsibility for his own conduct and for his own time, the consciousness of the necessity for labour and the exertion of all his powers. It is for the teacher to see that these precious seeds are not choked but that they are strengthened and properly directed. He brings with him also a vague, but lofty and reverent, idea of

learning, as the key to the mysteries of prayer, of eternal life and of divine wisdom. Making the sign of the cross, he kisses the first book which is put into his hands."

And Mr. Darlington assures us that the eagerness of Russian children to attend school is not exaggerated. He quotes a teacher in the Petrograd district zemstvos: "The children insist upon coming to school. Very few parents take any pains to see that their children attend school regularly, but the converse does occur, that is to say, the parents try to keep a child at home, and he quietly runs away to school. The children have a characteristic expression of their own (for attending school); they do not speak of being *sent* to school; they say that they are *let go* to school, that is, they are not detained at home."

The general desire for education in Russia, however, is true only of boys. Only one pupil out of four receiving primary education in Russia is a girl. The peasants are by no means persuaded of the necessity of girls knowing how to read or write. Moreover, the girl is of more assistance in farm work in winter than in summer. There is always the housework to be done and in the winter she can spin flax or knit stockings. Moreover, the boy may be attracted by the hope of being exempted from two of his six years of compulsory military service if he completes his course in three years in the primary school. The girl can hope for no corresponding privilege. Then too the physical conditions referred to as preventing the attendance of boys operates to even greater extent in the case of girls.

There is, of course, no such thing as compulsory education in Russia. The most that the friends of education hope for is to make the means of primary education universally available. Recent legislation of the dumas provided for a government grant of forty pounds for the salary of one teacher for every fifty children on condition that the zemstvos or other controlling authorities of the school should undertake to build, in a period of ten years, a number of schools sufficient to meet the needs of the whole population of their respective districts. Mr. Baring (The Mainsprings of Russia) states that as a result of this bill Russia will have in four or five years' time enough schools for the whole of its population and will be able

to contemplate the practical realization of compulsory education.

Russia cannot yet claim to have made any decided contribution to educational theory. Yet when we read the pleas of Madame Montessori and her disciples for greater freedom and opportunity for individual development in the school-room, or when we find, as in Dr. Dewey's *Schools of To-Morrow*, objections raised toward our whole modern system of requiring the child to master the elements of the recorded knowledge of the race, our minds go back to the more vigorous plea of Count Leo Tolstoi. The reader who would like to see the doctrine of freedom carried to a logical conclusion should turn to the record of the experiences and opinions of Tolstoi as recorded in an educational journal, published at his own expense, in 1862.

The school he describes was maintained for three years on his own estate at Yasnaya Polyana. "The pupils bring nothing with them—no books and no copy-books. They are not required to study their lessons at home. Not only do they bring nothing in their hands, but nothing in their heads either. The scholar is not obliged to remember to-day anything he may have learned the evening before. The thought about his approaching lesson does not disturb him. He brings only himself, his receptive nature, and the conviction that school to-day will be just as jolly as it was the day before."

Force should never be employed to maintain discipline. The employment of force, says Tolstoi, is due to haste and a lack of reverence for human nature. In Tolstoi's school "the teacher comes into the room in the morning and finds the children rolling or scuffling on the floor, and crying at the top of their voices: "You're choking me!" "You stop pulling my hair!" or, "Let up; that'll do!"

"Piotr Mikhailovitch," cries a voice from under the heap, as the teacher comes in, "make them stop."

"Good-morning, Piotr Mikhailovitch," shout still others, adding their share to the tumult.

The teacher takes the books and distributes them to those who have come to the cupboard. First those on top of the heap on the floor, then those lying underneath, want a book.

The pile gradually diminishes. As soon as the majority have their books, all the rest run to the cupboard, and cry, "Me one; me one!"

"Give me the one I had yesterday!"

"Give me the Koltsof book!"

And so on.

If there happen to be any two scufflers left struggling on the floor, then those who have taken their places with their books shout:—

"Why do you make so much noise We can't hear anything! Hush!"

The impulsive fellows come to order and, all out of breath, get their books, and only for the first moment or two after they sit down does the dying excitement betray itself in an occasional motion of a leg.

The spirit of war takes its flight, and the spirit of learning holds sway in the room. With the same zeal as the lad had shown in pulling Mitka's hair, he now reads his Koltsof book—thus the works of Koltsof are called among us—with teeth almost shut together, with shining eyes, and total oblivion of all around him except his book. To tear him from his reading requires fully as much strength as it required before to get him away from his wrestling."

The students have full power to behave as they please and to learn only what they like. When they are tired they go home, sometimes to the discomfiture of a teacher who finds about twice a week that his whole class has deserted him. Tolstoi's point of view was that, as there was perfect freedom in the matter, a teacher should congratulate himself that the pupils listened to as many lessons as they did. Tolstoi's contribution to the philosophy of school discipline and method has probably received less attention from teachers than it will some day receive. If they are not peculiarly Russian, many of them are, at any rate, endorsed by the leaders of educational thought in Russia, as witness the following resolution unanimously adopted by the Moscow Pedagogical Society and printed in the *Transactions of the Society for 1901*:

"(a) Certificates of merit, rewards, the inscription of names upon a roll of honor, the distribution and placing of pupils in class according to their attainments, should be banished from the schools since they obscure in the

minds of the pupils the true ends of knowledge and with the high-minded motives of the quest of learning mingle selfish considerations, vainglory, envy, and other undesirable sentiments.

(b) All kinds of marks (class marks, or quarterly, or annual marks) should be entirely excluded from the school; other methods of informing parents as to the work of their children should be devised by the pedagogical council (i.e., the staff of the school).

(c) The punishment of pupils, as a means in the highest degree dangerous to their moral development, should be resorted to only in exceptional cases and as the *ultimate* means of influencing their conduct."

and punishment here does not mean corporal punishment, which has for years been forbidden by law in all Russian schools.

The prospects of rapid increase in the general provision of primary education for all in Russia are bright. Popular opinion is decided and public opinion becomes year by year a more potent influence in directing public affairs even in Russia. Social and humanitarian effort is ready to play its part. The rivalry of the secular corporations and the church in providing means of primary education will promote rather than retard the movement. Social and economic pressure in favour of universal education increase daily. The liberal provision made recently by the state to increase the number and raise the salaries of trained teachers will have a marked effect. The revolt against the domination of western examples in education tends to glorify the peasants' school as being of all grades of schools the most truly Russian and most truly national. "We appear," says Mr. Darlington, "to be on the eve of the creation of a national school of thought in Russian pedagogy; the main interest for the student of Russian education during the next few years will probably consist in observing the influence of these new tendencies of thought in moulding the educational system of Russia into a closer conformity with the intellectual and moral ideals of the Russian nation."

W. E. MACPHERSON.

THE FALLACY OF THE NEBULAR HYPOTHESIS.

THE Ptolemaic theory of the motions of the heavenly bodies takes precedence over all other theories not because of its strict adherence to the facts revealed by observation of celestial phenomena but because it held sway for the longest period of years. Our little theories rise and have their day but the day of the Ptolemaic theory, with slight modifications and accretions, extended from the time of Eudoxus in the fourth century B.C. down until the middle of the seventeenth century, when it was overthrown by the "alternative hypothesis" of Copernicus and the discoveries of Galileo. The theory derives its name from the famous Greek astronomer, Ptolemy, who flourished about the middle of the second century A.D. According to this theory, the earth is globular in shape and immovable at the centre of the universe, while the sun, moon, planets and stars all revolve about it on crystalline spheres at varying distances. The outermost sphere contains the fixed stars and it rotates with such incredible velocity that all the stars, many of them so far distant that the light we now see left them before the dawn of the Christian era, complete a revolution in twenty-four hours.

This theory received the sanction of Aristotle and permeated many of the systems of theology of the early middle ages. It became the adopted child of the church, nurtured by theology and protected by Scripture. To doubt it was heresy, to attack it was blasphemy. Consequently all the righteous indignation of the faithful and orthodox was hurled upon Copernicus and Galileo, the former having offered an alternative hypothesis, the latter having substantiated that hypothesis by astronomical discovery. But the apparently unsuccessful struggle of Galileo against the Inquisition for the independence of scientific thought and investigation was not fought in vain. The Copernican theory triumphed in the following centuries and is now universally accepted as the only explanation of the motions of the heavenly bodies.

The following articles have been consulted in the preparation of this paper: F. R. Moulton, *Test of the Nebular Hypothesis*, *Astrophysical Journal*, vol. XI (1900), pp. 103-131; T. C. Chamberlain, *Test of the Nebular Hypothesis*, *Journal of Geology*, vol. VIII (1900), pp. 58-74.

When the crystalline spheres of Ptolemy vanished, there disappeared with them the motive power by means of which the heavenly bodies moved. The first theory to account for the motions of the planets, after the breakdown of the Ptolemaic hypothesis, was Descartes' famous Theory of Vortices. Descartes is best known through his contributions to philosophy and mathematics, but he was an astronomer as well. He might be called a 'drawing-room astronomer' as he did not allow his imagination to be restricted by any secondary things such as facts or observations. His theory rested entirely upon a metaphysical basis. It is this. The heavens are filled with a liquid substance having the common property of all liquids. (Modern physicists make a somewhat analogous supposition concerning the ether.) This liquid is in rotation and at various places throughout the solar system are whirlpools or vortices, just as there are eddies in currents of water. The sun is at the centre of a huge whirlpool and the planets are carried about it in different periods of time varying according to their distances from the sun. Each planet, in turn, is the vortex of a secondary eddy in which the respective satellites move. These secondary eddies are supposed to produce such changes in the density of the surrounding medium of the primary whirlpool that the planets move about the sun in ellipses instead of in circles. It is not difficult to show mathematically that on this hypothesis the sun would be at the centre of the ellipses and not at one of the foci, and further that the weight of every body on the surface of a planet, except at the equator, would act in a direction which is not vertical. If this were true on the earth the people living in different latitudes would be distinguished not only by their differences in dialect, religion and attitude toward Home Rule, but also by the angles which their bodies would make with the true vertical. This theory was worthless in so far as it contributed anything directly, but it marked a new era in astronomy inasmuch as it attempted to explain the phenomena of the whole universe in accordance with the mechanical laws which experiment showed to be true on the earth.

While Galileo was substantiating the heliocentric theory of Copernicus and suffering for its sake mental if not physical torture at the hands of the Inquisition, the Danish astronomer, Tycho Brahe, was making systematic observations of the heav-

only bodies, and from these records Kepler deduced the laws of planetary motion. Kepler's laws were all empirical and were formulated after several fanciful theories had been reluctantly discarded as they could not be made to conform with the observations of Tycho. Kepler's laws are (1) that every planet moves in an ellipse with the sun at a focus, (2) that the line joining the sun to the planet moves over equal areas in equal intervals of time, and (3) that the squares of the periods of revolution of the planets about the sun vary as the cubes of their mean distances from the sun.

The year after the death of Galileo there was born a diminutive child who was destined to be the discoverer of the law of force which governs the solar system and of the laws of motion by which its various members move. This child was afterwards called Sir Isaac Newton. The scientific world awaited the coming of his giant intellect. Sufficient data concerning the motion of the planets had been collected and the truth all but divulged when Newton, in a contemplative mood, (he was always contemplative, we may presume) saw the apple fall. The eating of the apple led to the fall of mankind, but the fall of the apple led a human intellect "to think God's thoughts after Him." From Kepler's laws Newton concluded that the propelling force which moves the planets in their orbits is neither the rotating crystalline spheres of Ptolemy nor yet the direct intervention of stalwart angels whose eternal duty was to make the worlds "go 'round", but is the mutual attraction between the sun and the various planets varying directly as the product of the masses and inversely as the squares of the distances.

Newton found a world in chaos governed by mysticisms, liable at any time to collapse should the crystalline spheres wear with constant use or should the angels become weary of their toil. He left a world governed by force in which the various members move "according to eternal laws." He was regarded by Laplace as not only the greatest genius that had ever existed but also the most fortunate, "for as there is but one universe it can happen but to one man in the world's history to be the interpreter of its laws."

When the nature of the universe had thus been settled, astronomers, mathematicians and philosophers turned their attention to the origin of the solar system and probable

theories of evolution. From a consideration of the nature of the solar system we are almost forced to conclude that there has been a development from an earlier state in which the various members were more closely related. The planets all move about the sun in orbits which are very nearly circular, in sensibly the same plane, the plane of the ecliptic, and in the same direction. (This direction is called *direct* and it is the direction in which the sun itself rotates on its own axis in about twenty-five days. The opposite direction is called *retrograde*.) The closer a planet is to the sun the shorter is its period of revolution about the sun. A glance at the accompanying table* of distances and periods of the planets shows that the relation between distance and period is consistent and obeys Kepler's third law.

Planet	Distance from the sun in millions of miles.	Period of revolution about the sun in years
Mercury	36	.24
Venus	67.2	.62
Earth	92.9	1
Mars	141.5	1.88
Jupiter	483.3	11.86
Saturn	886	29.46
Uranus	1781.9	84.02
Neptune	2791.6	164.78

The satellites of the various planets all revolve about their respective primaries in nearly the same plane in which the planets themselves move. There are exceptions to this, however. The four satellites of Uranus revolve in sensibly the same plane but it is inclined to the plane of the planet's orbit about 98° or 82° , according as the motion is considered direct or retrograde respectively. The orbit of the only known satellite of Neptune is inclined to the plane of Neptune's orbit, 145° or 35° , according as the motion is considered direct or retrograde respectively. The satellites of the various planets, with the exceptions stated below, revolve in the same direction in which the planets move. The exceptions are the eighth satel-

*From Moulton's Introduction to Astronomy, pp. 293-300.

lite of Jupiter,[†] and the ninth satellite of Saturn,[‡] discovered 1898. If we consider the motion of the satellites of Uranus as direct, then the plane of their orbits must be turned through 98°. Similarly the plane of the orbit of Neptune's satellite must be turned through 145°. The retrograde satellites of Jupiter and Saturn are in about the same plane as the other satellites and it is inconceivable that the plane of the orbit of one satellite of each planet should be turned over and not the planes of the other satellites.

When Laplace advanced his Nebular Hypothesis in 1796, the retrograde satellites of Jupiter and Saturn and Neptune's satellite had not been discovered.§ Thus to Laplace all the planets and their satellites revolved in sensibly the same plane and in the same direction. He calculated that this condition would be the result of chance in one out of five hundred million cases, and therefore concluded that the motions of the solar system are the result of some initial state from which the system has evolved. This led him to advance his famous nebular hypothesis but "with that distrust," he said, "which everything ought to inspire that is not the result of observation or calculation."

According to the theory of Laplace, the solar atmosphere or nebula extended out beyond the orbit of the farthest planet. It was in a very heated condition and the whole mass rotated in the direction in which the planets now move, but no explanation was given as to the cause of the original rotation. The dimensions of this enormous nebula were maintained by the gaseous expansion due to excessive heat and by the centrifugal force of rotation. As the mass radiated heat into the surrounding space it would contract, and as the total amount of rotation, i.e. the moment of momentum, must necessarily remain constant, the rate of rotation would increase as the body contracted. Finally a condition would be reached when

[†]Jupiter has nine satellites. The four which can be seen in an ordinary telescope were discovered by Galileo. The next one, the fifth, was discovered by Barnard in 1892. The ninth was discovered in September, 1914.

[‡]Saturn has ten satellites. The first was discovered in 1655 by Huyghens and the tenth in 1905 by W. H. Pickering.

[§]Uranus was discovered in 1781, two of its satellites in 1787, the other two in 1851. Neptune and its satellite were discovered in 1846.

the centrifugal force at the equator would equal the centripetal, that is, the attraction of the central portions for the parts at the periphery, and when the contraction continued still further a ring would be left off. The remainder would continue to contract through loss of heat and another ring would be left off. Thus a ring was left off at the distance of each planet and what was left of the original nebula formed the sun. On account of the unstable form of the nebula the ring could scarcely be uniform. It would separate at one point and, through the attraction of that portion of the ring where a preponderance of matter had been left, the ring would form into a nucleus similar to the parent nebula. These secondary nebulae would deposit rings at the distances of their respective satellites which, in turn, through the mutual gravitation of their parts, would contract into the satellites. Saturn's rings, it is claimed, are the only example of the secondary rings not yet contracted into a satellite.

This, in brief, is the nebular hypothesis—one of the boldest and most attractive speculations ever offered in science to account for the facts of observed phenomena. It had never been rigorously demonstrated to be true but it appealed to the imagination, as its grandeur seemed to blend with the gigantic task of constructing a universe.

There are two sets of facts which flatly contradict the nebular hypothesis. One set was not investigated, the other was not known, at the time the theory was proposed. These two sets are respectively the fundamental laws of dynamics and the facts revealed by astronomical discovery during the last century.

We shall first consider how the laws of dynamics contradict the nebular hypothesis. It is an indisputable fact that any system of particles of any kind whatever rotating about an axis preserves a constant moment of momentum whatever changes of form or arrangement the matter may undergo under its own interaction. The effect of foreign meteoroidal matter on the system has been slight and may be considered negligible. Let us now consider the moment of momentum of the original solar nebula. The greater its magnitude the greater will be its moment of momentum. Undoubtedly it must have extended many million miles beyond the orbit of the outermost planet, Neptune, before a ring could have been left

off. But assuming that the solar nebula extended just to Neptune's orbit, an assumption which is the most favorable for the Laplacian theory, we shall find that the moment of momentum computed for the system postulated by Laplace is many times the amount of the present moment of momentum. If a sphere and an oblate spheroid (a sphere flattened at the poles) have equal masses and equal equatorial radii, are composed of the same material (with differences in densities, however) and rotate with the same angular velocities, then the moment of momentum of the oblate spheroid will be greater. This is quite evident as the greatest difference between the sphere and the spheroid is in the polar regions where the effect upon the moment of momentum of the displacement of matter is least, and the spheroid must be denser in the equatorial regions to preserve the equality of mass. Thus, if we assume the original nebula to be a sphere, we shall obtain a smaller amount of moment of momentum than if we assume it to be an oblate spheroid which is the figure of hydrodynamical equilibrium. On taking the law of density to be that determined by Ritter and G. H. Darwin¹ we obtain in the following table² (first column) expressions for the computed moment of momentum at the various stages of evolution according to the Laplacian theory. The second column gives the present moment of momentum of the solar system. Thus

	Nebular Moment of Momentum	Present M. of M.	Ratios
Neptunian stage . . .	4848.055	22.76661	213 to 1
Jovian stage	1996.420	14.18161	141 to 1
Terrestrial stage . . .	857.330	0.71008	1208 to 1
Mercurial stage	512.290	0.67979	754 to 1

22.76661 represents the total amount of moment of momentum of the whole solar system; 14.18161 the amount if only the members of the system which extend out to and include Jupiter and its satellites are considered, and so on. The third column shows the discrepancies in the ratios, and as these discrepan-

¹References given in Chamberlin's paper, *loc. cit.*, p. 63.

²Chamberlin, *loc. cit.*, p. 65.

cies are not consistent or not even graded, it shows that they are not due to a fundamental error in the computations or in the assumptions on which the work is based. Thus the moment of momentum of the initial nebula of the Laplacian system is more than two hundred times greater than the present moment of momentum.

In the cooling of the spheroidal nebula it is reasonable to suppose that there would be some systematic relationship between the masses of the rings separated and the moment of momenta of these masses. The accompanying table¹ shows that no such relationship exists.

Ring	Percentage of mass of the parent nebula	Percentage of the Moment of Momentum
Neptunian	0.00507	7.93
Uranian	0.00454	6.31
Saturnian	0.02852	27.78
Jovian	0.09530	94.97
Martian	0.0000323	0.36
Terrestrial	0.0003160	2.42
Venus	0.0002495	1.89
Mercurial	0.0000205	0.12

These figures, impassive and serene as figures always are, "half conceal and half reveal" what might have been a terrible tragedy. When the ring which forms the Jovian system was separated from the parent nebula, it carried with it less than one-tenth of one per cent. of the mass of the parent nebula but nearly 95 per cent. of the moment of momentum! This is quite incredible. If it had carried away but 1/19000 more of the mass with an equal proportion of the rotational momentum it would have exhausted the supply of the parent nebula. If this had happened the younger members of the solar system would not only have suffered from this profligate and lavish distribution of the inheritance of momentum upon the favored Jupiter, but they never would have existed at all. The prodigal parent would have wasted his substance of momentum upon

¹Chamberlin, *loc. cit.*, p. 69.

the youngest member, his rotation would have ceased and the ring ceremonies have come to an eternal end.

By a second appeal to the laws of dynamics it can be shown that rings could not have been left off and that if they were left off they could not have contracted into planets or satellites. We show first that separate rings could not have been left off, but that if the process of leaving off matter once started, matter would have been left off *continually* and not *in rings*.

Two forces are acting upon a particle at the periphery of a rotating mass, both directed along the radius but in opposite directions, the centrifugal away from the centre, and the centripetal toward the centre. If the mass rotates as a solid both these forces vary directly as the distance of the particle from the centre. If the mass is a sphere, the centrifugal and centripetal forces would become equal through an increase in rotation not only at the periphery but all over the whole equatorial plane at the same time. Thus no rings could be formed with subsequent contractions of the nebula. If the mass is spheroidal in shape the centripetal force would not increase so rapidly as *directly as the distance from the centre* and the centripetal and centrifugal forces would become equal first at the extreme periphery and not at some point near the periphery, which would be necessary in order to deposit a ring. As the effect of cohesion would be very slight in this extremely tenuous nebula, if the process of leaving off matter once started matter would have been left off continually and not in rings.

Let us suppose now that a ring was deposited and that the distribution of mass in this ring was not uniform but that a preponderance of matter had accumulated at a region E. Denote the remaining parent nebula by S. Let us assume that E moves in a circle about S. We shall neglect the slight perturbations of the outer rings upon a particle M in the ring of which E forms a part. If we consider M infinitesimal, i.e., if it is attracted by S and E but is so small that its attractions upon S and E may be neglected, then if M is placed at either vertex of the equilateral triangles* with S E as base (denote these vertices by P and Q), it will remain stationary with respect to S and E. It has been shown by Moulton† that if the

*These points are called the Lagrangian Equilateral Triangle solutions of the problem of three bodies.

†Astrophysical Journal, vol. XI (1900).

particle M is on the arc Q EEP but not at P or Q, then it is possible for it to unite with the nucleus E, but that if the particle is at any other point on the circle it cannot be precipitated upon E. Thus even if a considerable nucleus had collected at a certain portion of the ring, it could not collect the particles distributed beyond 60° on either side of it. Hence the appeal to celestial mechanics shows that the Laplacian hypothesis is improbable if not impossible.

Let us now consider the second set of facts which contradict the nebular hypothesis, viz., the additional data collected through astronomical discovery in the last century.

The retrograde satellites flatly contradict the hypothesis of Laplace. It is inconceivable that the planetary nebula should be rotating in one direction when a ring was deposited to form a satellite and then change its direction of rotation before another ring was deposited. The only outside influences acting upon the nebula to change its rate of rotation are the tides produced by the parent nucleus, the perturbations of the other planets, and the accretion of meteoroidal matter. The last factor may be neglected as, by the theory of probability, the number of meteors which would tend to increase rotation about equals the number which would tend to decrease rotation. The chief effect of the perturbations of the other planets is to produce precession, and their tide-raising influences may be neglected in comparison with the tide-producing force of the parent nebula.

Consider now the case of either Jupiter or Saturn and their respective satellites. The argument is the same in both cases and we shall discuss only the case of Saturn. It is argued according to the Laplacian theory that the Saturnian nebula rotated in a retrograde direction when the ring which formed the ninth satellite was deposited. Through the effect of the tides produced by the solar nebula its rotation was then retarded until its period of rotation equalled its period of revolution—a condition of affairs which exists between the earth and the moon, as the moon keeps approximately the same face towards the earth. The rotation of the Saturnian nebula was still further reduced until it became zero and then it acquired a direct rotation after which the rings forming the inner (direct) satellites were deposited. This explanation seems

plausible but on closer examination it does not measure up with the facts.

The whole question of tides has been discussed by the late Sir George H. Darwin and he has shown that the character and magnitude of tidal influences depends upon the rigidity of the disturbed body and its period of rotation. The effect of tides is to decrease the rate of rotation and thus diminish the amount of moment of momentum. When the Saturnian nebula extended to the orbit of the ninth satellite, let us suppose it was rotating with a period of 29.5 years in the retrograde direction, and hence its moment of momentum was negative. Suppose the effect of tides changed its rotation from the retrograde direction to the direct; therefore its moment of momentum was increased from a negative quantity to a certain positive quantity. As tides decrease rotation, the maximum amount of moment of momentum would be obtained when the period of rotation of the nebula equalled its period of revolution, i.e., when its day and its year were the same. Now the greater the distance is from the centre of Saturn when this condition of affairs existed, the greater would be the amount of moment of momentum. To make the case the most favorable for the nebular hypothesis, let us suppose that this distance extended out to the orbit of the ninth satellite. When the Saturnian mass had shrunk down to the orbit of Japetus, the innermost satellite, it was rotating with the period of Japetus and, as the amount of moment of momentum would decrease through the influence of tides, we would expect a smaller amount when the nebula extended to Japetus than when it reached out to the ninth satellite. The numerical computations show just the reverse, as the moment of momentum when the nebula extended to Japetus is found to be more than seven times greater than when it extended to the ninth satellite. Thus even with the additional aid of tide-producing influences, which Laplace did not include in his theory, the retrograde satellites squarely oppose the nebular hypothesis.

But what about Saturn's rings? Are they not living witnesses that rings were deposited? But even Saturn's rings rise up in witness against the Laplacian theory and testify that they had not been formed thus. It has been determined by means of the spectroscope that the outer portion of Saturn's rings rotates in a period of fifteen hours, while the inner por-

tion rotates in six. This seems to accord with the nebular theory as the rotation increases with a diminution of mass. Accordingly we would expect the period of rotation of the planet itself to be less than six hours but the observations show that it rotates in ten hours. This condition of affairs would be impossible if no other forces than those assumed in the Laplacian hypothesis were operating.

A story is told of a certain king who was about to make a formal visit to an eastern city. On his arrival at the city gate he was met by the mayor's deputy, who informed him, after due obeisance, "Your Majesty, there are ten reasons why his worship the mayor cannot receive your majesty into the city to-day. The first one is that the mayor is dead, the second is—." But sufficient reason had been given. Thus other reasons might be given in detail which oppose the nebular hypothesis, but the retrograde satellites themselves are sufficient to disprove the theory. A brief statement concerning some of these facts must suffice.

The inclinations of the planes of the planetary orbits, to each other, to the general plane of the system, and to the plane of the sun's equator are not to be expected if the origin of the solar system is the ring theory. The high eccentricities of the inferior planets cannot be accounted for, since the ring theory requires the orbits of the planets to be the more nearly circular the nearer they are to the sun. Just the opposite is the case as the eccentricity of Neptune's orbit is more than twice as great as that of Mercury. The orbits of the planetoids form a complicated system of interwoven loops which cannot be untangled by the Laplacian theory. As in the case of Saturn and its inner ring, one of Mars' satellites, Phobos, revolves about its primary in less than eight hours while the planet itself rotates in about twenty-four hours.

As there is no church which adopts the Laplacian hypothesis as a creed and no Inquisition to enforce adherence to its teaching, our faith and freedom are independent of our attitude toward this hypothesis. It is a purely scientific question and must be considered as such, irrespective of prejudice or tradition. If it agrees with the facts let us retain it, if it contradicts the facts let us reject it and endeavor to find a theory which is consistent with the revelations of modern science, both theoretical and practical. Just as the Ptolemaic theory

had to be discarded when subsequent discoveries revealed its fallacy, so recent investigations lead us to reject the nebular hypothesis and seek a new theory. The theory which satisfies all the requirements of celestial mechanics and practical astronomy better than any previous one is the Planetesimal or Spirual Nebula Hypothesis formulated within the last decade by two professors in the University of Chicago, Professor F. R. Moulton of the Department of Astronomy, and Professor T. C. Chamberlain of the Department of Geology. This theory will be discussed in a subsequent issue.

DANIEL BUCHANAN.

NATURAL MEASUREMENT OF TIME.

THE YEAR.

Although the tropical year and the seasons are so intimately connected together as not to be separated, yet it is not practicable to determine the length of the year, or its beginning, or its end, by any reasonable amount of observation upon the course of the seasons. The phenomenon of “winter lingering in the lap of spring” and others of like kind are too numerous to allow of any exact fixing of the beginning of a season by means of the weather or anything depending thereon; and we are finally compelled to resort to the motions of the sun in order to get definite results.

Thus, the mean sun (p. 357), in its apparent annual course about the earth, passes through the equinoxes and the solstices—the equinoxes being the points where the ecliptic crosses the celestial equator, and the solstices being the points in the ecliptic farthest distant from the equator, one being north and the other south of the equator.

Then, in the northern hemisphere, *spring* begins when the centre of the mean sun is at the first point of Aries, or the vernal equinox. About three months after this, *summer* begins, the centre of the mean sun having arrived at the summer, or northern, solstice. This is the first point of the constellation *Cancer* in the conventional zodiac.

After another three months the centre of the mean sun arrives at the autumnal equinox, and the season of *autumn* commences. This is the first point in the constellation *Libra*. Going on for another three months the centre of the mean sun arrives at the winter solstice, or the first point of the constellation *Capricornus*, in the conventional zodiac, and *winter* begins. In another three months the sun returns to the vernal equinox, and the year is completed.

Thus, the seasons and their limitations are absolutely defined by the motion of the sun, and these definitions are exact, no matter what may be the character of the prevailing weather in any season or in any part of it. And all agricultural and horticultural operations are naturally carried out in dependence upon the seasons as now defined.

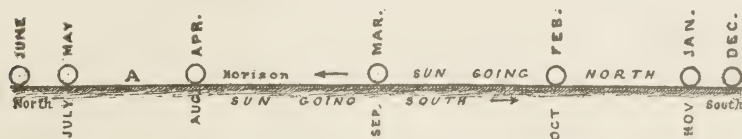
To observe and measure the apparent motion of the sun as for six months it moves from the summer to the winter solstice, and for six months moves in the opposite direction, is easy enough for modern astronomers armed with all necessary telescopes, measuring instruments of all kinds, and other paraphernalia for the purpose.

But it was different with the pioneer of four or five thousand years ago, when astronomy was in its infancy, when the only telescope employed was built upon the ground and had to serve the purpose of both observatory and temple, and when the sundial and the clepsydra furnished the only means of counting the smaller intervals of time. And yet these pioneers succeeded, in a very ingenious manner, in keeping count of their years and confining them to the four seasons.

Even a superficial observer must notice that in the northern hemisphere—and where not necessary to do otherwise we shall confine ourselves to this hemisphere—the sun comes northward in the summer time, and moves away to the south in winter, the whole extent of the excursion being about 47° , or more exactly $23^\circ 27'$ on each side of the equator. And a little careful observation will show that, with our present division of the year into months, the sun rises and sets farthest north of the equator about June 23rd, and farthest south of the equator about December 21st.

And as the seasons and the length of the tropical year are determined by these solar excursions, we have, in them, a proper and convenient index of the passing years.

These results are illustrated in the accompanying diagram where the horizontal straight line denotes the eastern horizon as seen over a level plain.



The positions of the sun, at rising, are shown by small circles for about the 21st day of each month, from December to June, with the sun going northwards, and from June to December, southward, the northward motion being represented above the line and the southward motion below it.

Now let *A* be the point in the horizon at which the sun rises on some particular day. Then, if the year consisted of a whole number of days, one year afterwards the sun would rise exactly at the point *A* again. But because the year is not a whole number of days, the sun would not rise exactly at *A* when the year came around. But we now know that the error in one year would be slightly less than one-fourth of the sun's daily motion, and that by the accumulation of errors the discrepancy would tend to right itself after a series of years.

Thus, by counting the days from that upon which the sun rose at *A* when going northward, to that in which the sun rose nearest to *A* when going northward the next time, we would get the length of the tropical year to the nearest whole number of days. The error would correct itself by adding an additional day to the year when required, and it is therefore not accumulative.

This will be considered more fully under the calendar or civil year.

This method, however, although connecting the seasons with the year in perpetuity, could not give us the true length of the year unless by averaging a very large number of the yearly results so obtained.

Observations of this kind could readily be carried on by setting a number of stakes on an extended plain, or by otherwise permanently marking out a line, directed to *A*, or to any practicable point on the eastern horizon, if the sun's rising is to be observed, and to the western horizon if the setting is to be observed.

The ancient Egyptians, among other early people, employed this method of getting at the length of the year and of connecting the year with the seasons. But to the ancient Egyptians the sun, the moon, and many of the bright and significant stars, were gods, or in a way represented gods. Thus it appears on good authority that the rising sun, the bringer in of the morning and the light, and the extinguisher of the stars, was Horus. The sun in his strength and brightness, when high in the heavens, or at noon, was the great god Ra; and the setting sun, when leaving the world of the living and going down to cheer for a while the underworld of the dead, was Osiris. So that to these people astronomy and religion were, to a great extent, one and the same thing, and the priest

was at the same time the administrator of all religious ceremonies and the astronomer.

And instead of depending on anything so frail and commonplace as stakes to line out the position of the rising or the setting sun, they built huge and wonderfully complex temples with long and narrow axes directed to some desirable point of the horizon, and through which the sun's rays might pass into the holy of holies, at rising or at setting, on certain days only as determined by the particular orientation of the temple.

Of these grand old temples, the work of a giant-nation of builders, little now remains but masses of ruins, their usefulness gone and their religious ceremonies living only in ancient history, while a few of their titanic monoliths have been scattered throughout the world to form interesting ornaments for strange cities.

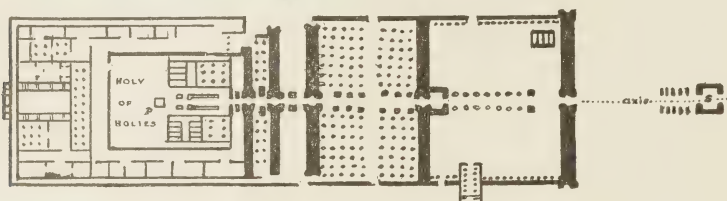
The following illustration is a perspective view of the temple of Amen-Ra at Karnak, in upper Egypt, which, when in its glory, was probably the greatest structure ever reared by the hands of man, and which now forms the most extensive ruin in the world.



The total length of this temple was about 1,600 feet, and it covered an area fully twice as great as that of St. Peter's at Rome. It was oriented to the setting sun at the summer solstice, presumably because the western horizon offered the better view.

The next illustration is of a plan of the temple, in which the open axis, throttled down by numerous narrow passages

between pylons and columns so as to prevent the passing of extraneous rays, is clearly shown. At *S* is a double row of sphinxes, and at the proper time the rays from the setting sun—which in Egypt shines from a cloudless and mistless sky—threaded their way through the long narrow axis and fell upon the altar *P* in the holy of holies, and indicated to the attending priest that the sun had arrived at the summer solstice.



In regard to the method of accommodating the year to the seasons as now described, it may be worth while to make a few remarks.

The apparent movement of the sun from north to south and back again is harmonic in character, so that it is slowest, coming to rest for a moment in fact, at the solstices, and greatest at the equinoxes. As a consequence the sun's rays, when at a solstice, might penetrate into the holy of holies for several days in succession, while they could not do so for more than a couple of days, at most, in a temple oriented to the equinox.

It appears then that temples oriented to a solstice were much more uncertain in their determination of the particular day of the solstice, than one oriented to the equinox would be in regard to the particular day of the equinox.

Why the great temple of Karnak was oriented to a solstice we do not know; possibly on account of the lay of the country, or for some reason connected with the religion of the people. Some temples are known to have been oriented to the equinox, as was Solomon's temple, according to Josephus.

However, either case would give results sufficiently close for agricultural and sacrificial purposes, and, as said before, the error, whatever it may be in any particular year, cannot amount to over a couple or three days at most, and it is not accumulative.

Although the orientation of a temple to a solstice may have served its intended purpose for some centuries after its

builders had passed away, yet owing to the slow secular change by which the obliquity of the ecliptic is decreasing in amount, the extent of the sun's annual oscillation was, and still is, growing less from century to century, and after a few thousand years the sun's rays would no longer be able to penetrate the axis of the temple, which would therefore lose its astronomical value.

Temples oriented to the equinox would undergo no change in their astronomical value, and those to any other point might be only slightly affected.

So that whatever may have been the reason for orientation to a solstice, it was the worst of all orientations that could be made, and this for two reasons, that it was more uncertain in its indications, and it was sure to fail after a considerable lapse of time.

Any individual temple could give, at most, only two points or periods in the year, and if oriented to a solstice, only one period, which would naturally be taken as the beginning of the new year.

But the early Egyptians, as well as other people, found it necessary to divide the year into parts or seasons just as we do. For, some phenomena, such as the rising of the Nile, was to them of such vital importance, that it was seemly to celebrate it by some religious ceremony. And all such matters had to be arranged and prepared for by the priest-astronomer.

This division of the year into certain seasons could have been done by orienting temples to different points, as required, within the limits of the sun's annual oscillation, and it is quite possible that some of the many temples scattered over the country may have been so oriented.

But this pioneer people had another method of solving this latter problem, and this we proceed to describe.

The sun, in its apparent annual journey about the earth, passes from west to east among the stars in the vicinity of its path. So that a star that is east of the sun by a small amount to-day will be west of the sun after a few days.

Now when a star is east of the sun it rises after the sun, and is lost, or unseen, in the surrounding brightness of the sky. But when it is west of the sun, but not far distant, the star rises a little before the sun and may, if it be a bright star, be seen to rise in the morning dawn just before sunrise.

In this latter case the star is said to rise *heliacally*. As there are several bright stars in the vicinity of the ecliptic, or sun's apparent path in the heavens, the year can be divided into periods and seasons, with considerable accuracy, by observing the heliacal rising of these stars as, one after another, they take their places in the order of rotation.

And as it was the business of the priest to watch for the dawn and the rising sun, it was his business also to detect the first glimmer of a heliacally rising star as it preceded the sun and rose in the brightening dawn.

This very natural method of indicating the coming in of various seasons was in use among many nations of the past, and continual references to it are to be found in ancient classical writings.

But this usage of appealing to the stars necessarily introduced, into the count, time as measured by the sidereal year. And, as the sidereal year is longer than the tropical year by about 21 minutes, the season as determined by the heliacal rising of a star became later from year to year, and after a time became so far out that the star was abandoned in favor of some other that suited the purpose better.

And some of the heliacal risings referred to in the writings of Vergil bear evidence of having been adopted at a date fully 2000 years before Vergil's day.

And such references are often to be looked upon as being traditional rather than of any practical use at the time in which the author lived and wrote.

Ancient Egypt, as far as pure astronomy was concerned, was badly handicapped by the circumstances—first, that the subject was in the hands of the priests and was a part of their priestly education, and that it was, in consequence, surrounded and filled to overflowing with crude religious ideas and numerous religious forms and ceremonies, calculated not so much to teach the people anything as to awe and impress them with the power and importance of the priesthood. And, second, that their only telescopes—or what took the place of telescopes—were temples, built even more for mysteries and occult ceremonies than for real astronomical observations.

And one must be impressed with the great number of small chambers and pillared halls to be seen in the plan of

their greatest temple, while only the axis served any astronomical purpose as far as we can see.

Observation on a heavenly body by such a telescope could be carried out only when the body was on the horizon, that is either at rising or at setting, and even then only when the temple had a proper orientation.

Hence the repeated references and invocations to the horizon, and the double horizon meaning the eastern and the western horizons.

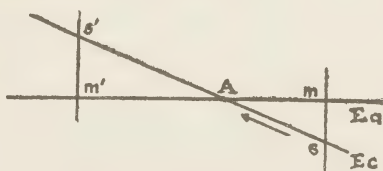
It was only after astronomy threw off the nightmare of theology, which had so long held it in bondage, and became free to follow and discuss its theories in its own way, that possibilities opened up to it of becoming an independent science. And these possibilities being established it soon began to forge ahead.

Except for special reasons, the heavenly bodies are not, to-day, observed upon the horizon, but rather when high in the heavens. And mammoth telescopes capable of being directed to every point in the visible sky are to be found in every well equipped astronomical observatory.

With the appliances of modern astronomy it is not difficult to find a close approximation to the length of the tropical year. But, of course, it must be borne in mind that accuracy in result follows only laborious and painstaking accuracy in observation.

We shall briefly explain here how the position of an equinox may be found—for the sun occupies a tropical year in passing from an equinox to the same equinox again.

In the figure, let the horizontal line Eq represent a part of the celestial equator near a node, and let Ec represent the ecliptic crossing the equator at A , the ascending node.



Now as it is not probable that the sun will be at the node exactly at noon, let s be the sun's position at the noon before it reaches the node, and s' be its position at the following noon.

Then sm is the sun's declination at the first noon considered, and $s'm'$ is its declination at the next noon, and both of these can be observed and measured quite accurately by means of the transit instrument.

Denote these declinations by δ and δ' respectively. Then we have, from similar triangles, the relation—

$$mA : mm' = sm : sm + s'm', \text{ or } \delta : \delta + \delta'.$$

$$\therefore mA = \frac{\delta}{\delta + \delta'} \cdot 24 \text{ hrs.}, \text{ since } mm' = 24 \text{ hrs.}$$

The following will serve as an illustration.

On Mar. 20th, 1882, the declination of the sun at noon was observed to be $0^\circ 4' 49''$ south and on the 21st at noon the declination was $0^\circ 18' 49''$ north.

Here $\delta = 293''$, $\delta' = 1129''$ $\delta + \delta' = 1422''$.

$$\text{and } mA = \frac{293}{1422} \times 24 = 4^h 56^m 33^s.$$

That is to say that in the year 1882 the sun was at the ascending node at $4^h 56^m 33^s$ p.m. on Mar. 20th.

And thus for any year we can find, by direct observation, the time when the sun arrives at the ascending node, and hence the length of the tropical year.

For finding the mere length of the year it matters very little whether we consider the true sun or the mean sun. But if we are in search of the beginning of the year—assuming it to begin when the mean sun arrives at the vernal equinox—it is necessary to reduce the observations on the true sun so as to apply them to the mean sun.

THE CIVIL OR CALENDAR YEAR.

As we have already seen, the tropical year does not consist of a whole number of days, and as far as we know the length of the year is incommensurable with that of the day.

But the calendar or civil year, or that year which is registered in the calendar and according to which all business and commercial matters are carried on, must begin with the beginning of a day and must consist of a whole number of days. For it would be very confusing—too much so to be permitted in practice—to have one year begin at 8 o'clock in the morning, say, and the following year begin at 1.30 in the afternoon, etc.

And this is what would take place if we tried to measure the year in terms of its true length, and without any reference as to what time in the day it should begin or end.

It follows, then, that if the calendar year is to be kept from wandering too far from the tropical year the calendar years cannot be all of the same length, and that as we count the calendar years as each consisting of a whole number of days, some calendar years must differ from others by a whole day, at least.

How and when these changes or corrections are to be applied, so as to keep the calendar and the tropical years as near together as possible, is our problem.

The ancient Egyptians, from the very nature of their usage, in making one year end and another begin when the sun arrived at the summer solstice, and giving no special attention to the particular number of days in the year so determined, found no difficulty in keeping the calendar year and the tropical year near together, as the necessary lengthening or shortening of the year was automatically effected whenever required.

But with all early people who endeavored to count their years solely as containing a certain number of days, there has been difficulty and sometimes confusion, arising principally from not knowing the exact length of the tropical year.

In counting their year by days, however, the Egyptians had a system quite peculiar to themselves. They knew that there were 365 whole days in a year, and so they established a year of 365 days.

But, as we have seen, the tropical year consists of 365.2422 days, and .2422 is contained in 365.2422 about 1508 times. So that the beginning, or the New Year's day, of this Egyptian year, occurring every 365 days, came in by about $5^h 49^m$ too early each year, and therefore ran through the whole range of the seasons in 1508 years.

Instead of the number 1508 the Egyptians adopted 1460, which would seem to indicate that they assumed $365\frac{1}{4}$ days as the length of the tropical year.

This term of 1460 years was the *great year*, or the *Sothic year*, the latter name coming from the Egyptian term for the dog-star, or Sirius, which is the brightest fixed star in the heavens and which played an important part in the ancient system by its heliacal risings.

The Sothic year was a valuable arrangement for fixing dates, as two years having the same number in different Sothic

years could not be less than 1460 years apart, and therefore could not well be confused with one another. And it is said that the Egyptians valued their calendar so highly that the priests exacted an oath from every new Pharaoh that he would not change the calendar.

Leaving the further consideration of this part of our subject until we come to the division of the year into months, we go on to investigate and see what is necessary to be done to keep the calendar year as near as possible to the tropical. For this purpose we may assume, at the beginning, that these years will never differ by more than a single day. For whenever this happens it would be corrected by adding on or dropping off a day, as the case may require.

The tropical year contains an excess of 0.2422 days over the calendar one, and whenever this excess accumulates so as to exceed one day, a day must be added to the calendar year.

We must then divide 2422 by 10,000, and find the convergents by the method of *continued fractions*.

A very close convergent is found to be $8/33$, which means that the annual excess of .2422 days will amount to 8 days in 33 years; and we may now prove this by multiplying 0.2422 by 33. The result differs from 8 days by less than eleven minutes.

Now 33 being an inconvenient period, we may do as follows:—

Multiply both 33 and 8 by $3\frac{1}{33}$ and we get 100, and $24\frac{8}{33}$ respectively. One hundred is certainly a convenient period, and $8/33$ is nearly equal to $\frac{1}{4}$.

So that we may take 100 and $24\frac{1}{4}$ for our numbers, and we find that the excess amounts approximately to $24\frac{1}{4}$ days in 100 years.

The calendar authorized by Julius Caesar and known as the Julian calendar, adds on one day to every fourth year, counting from zero, and therefore adds on 25 days in 100 years. So that in this calendar every year evenly divisible by four is a leap year and contains 366 days, while every year not so divisible is a common year containing 365 days.

This arrangement is certainly very simple, but, as is readily seen from the foregoing calculations, it adds on three-fourths of a day too much in each century, or three days too much in 400 years.

This excess, small as it is, amounts to 11 days in 1500 years, and when uncorrected causes the equinox to travel backwards among the days of the month.

Thus at the time of the Council of Nice in 325 A.D. the equinox fell upon the 21st of March, whereas by the year 1582 it had receded 11 days and had gone back to the 10th of March.

In order to prevent this wandering of the equinox, and to restore it to its former date two things were necessary—first, to make such a correction in the Julian mode as to prevent the excess of 3 days in 400 years, and second, to drop out 11 days from the current count of time.

These changes were decreed, upon the advice of astronomers, by Pope Gregory XIII, and the calendar so reformed is known as the Gregorian calendar.

In the year 1582 it was decreed that thereafter the full centuries—which according to the Julian calendar were leap years—should be leap years only when the century number is evenly divisible by 4. Thus 1600 was a leap year while 1700, 1800, 1900 were common years. This takes from the Julian count exactly 3 days in 400 years, as required for the correction of the calendar.

And then to restore the date of the equinox it was decreed that the day following the fourth of October in that year should be counted as the 15th of October. This brought the equinox forwards to the 20th of March, but it dropped out only 10 days instead of 11 days, as it should have done, so that the equinox now oscillates between the 20th and the 21st of March.

These changes came into force at once in all Roman Catholic countries, but they were not accepted in Great Britain until the year 1752, by which time the error had amounted to an additional day. In 1752 an act was passed by the British Parliament making the Gregorian calendar the legal one, and ordering that the day following the 2nd of September in that year should be called the 14th of September, so as to bring the count into agreement with that of those countries which had already adopted the Gregorian calendar.

It will be remembered that the ratio upon which we have been working, that of $24\frac{1}{4}$ days in 100 years, is only a close approximation. To find its error and the means of correcting it, if necessary, we may do as follows:—

Assuming the excess of the tropical year over 365 days to be 0.24224 days, as given in the best works on astronomy, we have the excess for 400 years as 96.896 days.

But 400 years, by the Gregorian system, contains 97 leap years, and therefore accounts for 97 days.

Hence the Gregorian calendar adds on too much by 0.104 days in 400 years, or 1.04 days in 4000 years.

To correct this very small error it is proposed that the full thousands of years—which by the Gregorian system would all be leap years—should be counted as leap years only when the number of the thousand is not divisible evenly by 4. Thus, 2000, and 3000 will be leap years, but 4000 will not be.

The accuracy of the Gregorian calendar is wonderful when you consider that it was devised in the 16th century, and that by its usage the equinox would vary from a fixed place in the year by only one day in four thousand years.

The proposed correction for a day in so long a period as 4000 years need scarcely to be taken into consideration. For it is quite possible that changes in the rate of precession of the equinox during so long a term may require some other correction, if any, as it must be accepted that there is nothing fixed or invariable in the Universe except its laws.

Before leaving this part of our subject it may be well to refer to the views of a writer who holds that the adoption of the Gregorian calendar was of doubtful advantage, because, according to his opinion, it would have been better to adhere to one fixed system which had been in use for nearly sixteen hundred years, than to change to a new system that would prove a stumbling block in the chronology of the future.

From this view we totally dissent. For we believe that it is immensely more important to man and his usages that the civic year be kept as close as possible to the equinoxes and the seasons, than that the equinox should be allowed to drift through the months to satisfy the requirements of an easy chronology.

For we must remember that man lives in the present and has some interest in the near future, while the past, however valuable it may be as an index of the future, is forever fixed and out of our control. We may improve upon what is and what is to come but we cannot improve that which is past.

N. F. DUPUIS.

QUEEN'S SUMMER SCHOOL.

THE maintenance of summer schools has become a common policy in the Universities of many northern democratic countries. The objects served are several. Medical colleges permit summer study to lighten or shorten the work of the senior years. Engineering colleges frequently demand one or more summer terms which are largely devoted to field or factory conditions of work. Students of mature years are encouraged to reach graduation at an earlier date by spending a part of each long vacation in study. Especially valuable are summer schools where the usefulness of the University has been extended by courses given in absentia to students whose responsibilities preclude their attendance on winter classes.

Two objects were prominently before those who established Queen's Summer School in 1910. The first was the need for strengthening and adding variety to our extra-mural courses, by giving opportunity for laboratory work in science, and thus permitting our extra-mural students to select courses containing scientific subjects. The second object was to open to teachers, who have courage, ambition, and ability, an opportunity of improving their scholarship and professional standing.

In the history of Canada, the term profession has been a misnomer when applied to the work and position of the teacher. His remuneration has been slightly greater than that of an unskilled laborer, but less than that of a good mechanic. Unlike all other professions, the teacher's experience is not supposed to add to his value after the first or second year. Teaching thus becomes a blind alley in which continuance and honourable progress are practically impossible. For such an unsatisfactory condition, there must be an adequate cause. It is found in the demand for teachers, willing to work for very low salaries. As a result our elementary schools have been in the hands of teachers with the minimum of scholarship for their duties. They are unwilling to invest more time, effort, and money than will barely enable them to enter the profession of teaching. In our but partially developed country, other pursuits offer a less prompt but greater reward, and teaching is seldom regarded as other than a stepping-stone to a more

lucrative employment. Progress for a teacher thus means advancing out of the profession, not in it.

As only the beginning of an education is required for entering upon a teacher's duties, many are seduced into starting the work, only to be faced in a few years by the necessity of taking up their studies again, or quitting this line of employment. His poorly paid teaching experience gives a young man small hope for the future; better things are expected from other directions, so but a small fraction of those who teach with the lowest grade of certificate return to school to qualify for the higher grades of the service.

It follows that our elementary schools are in the care of a succession of very youthful and inexperienced persons, who teach more or less badly for a few years and then leave the work to others. Two classes continue as teachers, those too timid or too indolent to attempt to learn a different occupation, and those genuinely attached to teaching and desiring to make it their lifework.

It is particularly to the latter class that summer study makes a strong appeal. The opportunities of gaining increased knowledge, of observing good methods of presenting this knowledge, of enjoying again something of the light responsibility and the pleasant companionship which make school days and college sessions so attractive, these make a combination which every real teacher should welcome.

When to this we could add the possibility of obtaining by perseverance and faithful study, an advanced certificate or a degree in Arts, opening to the student a way to the prizes of the teacher's profession, we felt that the teachers of Canada required but to know of this to respond in large numbers. We hoped to offer such opportunities for progress that an increasing number of ambitious and intelligent persons would look upon teaching as a lifework worthy of their best efforts and offering in its higher reaches prizes equal to those of any other career.

In this hope we were seconding the friendly legislation, which in Ontario was attempting to abolish the lowest grade of certificates and the very low scale of remuneration. Our experience was in line with that of the legislators. A campaign of education was necessary to make clear to teachers the things which pertain to their own best interests.

In July, 1910, after what was thought to be adequate announcement, we opened the first session of our Summer School in Arts, offering eight subjects—English, Latin, French, German, Physics, Chemistry, Animal Biology, and Botany. The portions studied were selected in consultation with the students. Acting upon what we believe is a wise policy, these subjects were placed in the hands of the same men who were responsible for them during the regular session. Many of the best of the University instructors desire the summer vacation for study and research, but in general we have found a sufficient number of the professors so alive to the importance of the Summer School that they have been willing to give up a part of each vacation to advancing the interests of the teaching profession. The number of students—all teachers—responding to our offer in 1910 was twenty-four. We had hoped for many more, but the excellent quality of those who came, and their enthusiastic reception of the work offered to them made us almost forget our ambition for numbers. Consultations with the students encouraged us to believe we were on the right track so far as subjects and presentation were concerned, and we opened our school in 1911 expecting an increased attendance. Thirty-seven students registered for our second summer term, and again the quality of their work, and their earnest assurance that many others would come if they knew of the opportunity, encouraged the Summer School Committee to request the support of the University Senate, in asking the Board of Trustees to continue the work in spite of the considerable financial deficit. To the steady optimism and wise advice of our Principal and to the courage of our Trustees in closing their eyes to comparative failure, and accepting the responsibility of pushing forward the work because they recognized its possible value—to these factors must be ascribed much of the credit for the survival of the Summer School.

But another and unique factor in the promotion of summer study played a very important part in determining the future of our school. When in 1912 and 1913 the increase in attendance seemed so small as to quite fail to justify our efforts, the summer students organized themselves into Queen's Summer School Association, appointed an executive, and taxed themselves to form a campaign fund for advertising the advantages of summer study, especially at Queen's. This propaganda took

various forms, all likely to be more effective than announcements from the University. Addresses at the Ontario Educational Association and at Teachers' Institutes, booklets, circular letters and newspaper and magazine advertising represent but a part of the activity of this resourceful body. It will detract nothing from the credit due to many others to say that Mr. J. T. Curtis, of Ottawa Collegiate Institute, president of 1914, led the way in devoting his time, energy, and means to the advancement of the school. Largely as a result of this campaign a wider interest has been evident during the last two years. 1914 brought us an increase of fifty per cent. beyond the largest previous attendance, while in 1915 the students reached the very satisfactory number of 150. The Faculty of Education has contributed in an excellent manner to this last summer session, by offering courses leading to professional certificates, and to the degree in pedagogy. Here the graduates of our own and other Universities, teachers in Normal School, and Public School Inspectors may obtain guidance in advancing their professional standing.

It soon became evident to observers that the students attending the summer sessions are the product of a long process of natural selection. Only the elect will make the sacrifices involved in giving up their vacation, their energy, and their often slender savings, in the more or less precarious hope of reaping a satisfactory reward "after many days." Their earnestness and devotion to the work of the classes are a continual joy to the instructors, and the honorable positions they take in the class lists are but further evidences of quality.

Excepting Prince Edward Island, every province of Canada is represented in our list of summer students—from the tides and fogs of the Bay of Fundy to the semitropical conditions of Vancouver Island—and all express satisfaction at the prospect of annual visits to Kingston. There can be no doubt that the situation of Queen's and the delightful summer climate of Kingston are strong factors in making successful such an enterprise, but the fact remains that the teachers of Canada are becoming alive to the fact that their occupation may become a real profession, worthy of their continued effort and devotion, and that in our University they can find sympathetic aid in working toward their highest ambitions.

W. T. MACCLEMENT.

CRAFT-GILDS OF THE THIRTEENTH CENTURY IN PARIS.

THE gild as it appears in Paris in the 13th century, M. Lespinasse in his Introduction to Étienne Boileau's *Livre des Métiers*, defines as "a combination of individuals having the right to carry on an industrial profession, composed of masters, valets, and apprentices, and bound by oath to observe the prescribed regulations, and to respect the authority of the Jurés in their supervisory functions." The gilds in documents of the time are called somewhat loosely *corporations*, *corps de métier*, *métier*, *commun du métier*, *ghilde*, and less correctly *charité* or *confrérie*.¹ The gild was a fortress to which the workman rallied and from which he beat off assailants in the form of feudal lords or foreign trade competitors. Its primary function was to safeguard the rights of labor, at any period none too stable, and in the complicated social organization of the later Middle Ages, decidedly precarious. Privileges had to be fought for and wrested from the overlord of the community, be he king or noble, and a definite regulation, though still in its prescriptions onerous, was preferable to a haphazard system of 'taxation,' subject only to the sanity or rapacity of count, king or bishop. Foreign laborers and merchants, too, the narrow economic vision of the period pointed out as hostile to the well-being of the city-gild, and so exclusion by legislation is an important article in its "foreign policy." Against enemies within their own ranks a sharp guard had to be maintained; ignorant practitioners or a superfluity of apprentices might sadly damage the gild's reputation for work which was "good and loyal." The organization of the 13th century gild seems to find its motives in the desire to establish a definite and firm control over the *métier*, and to establish, so far as custom and law would sanction it, a monopoly over the commodities produced.

The question of the political significance of the gild may be set aside at the start. It has been a difference of opinion

¹Throughout this paper I shall translate the French word *métier* by the more usual word *gild* when it refers to the organization and not the craft.

which came first, the gild or the commune, and whether there was a causal relationship between the two. The fact is that most of the gilds—as organizations—had no political share in such activities as elections. The gild was not the cause of the commune; the commune did not originate the gild. M. Fagniez¹ has said “Le mouvement communal ne fut pour rien dans cette émancipation de la classe ouvrière; elle était terminée quand il commença.” It is interesting to note, however, the prominence which, under the gild régime, certain *bourgeois* and tradesmen attain. For example, the provost of the watermen of Paris came to rival in power the king's provost of Paris.

It is outside the province of this paper to discuss the somewhat vexed question of the origin of the gild. Various theories have been vigorously championed, and a mere mention of them with a few facts as to the early appearance of the gilds will suffice. One theory maintains a survival from the Roman *College*, another as an analogue to the Germanic *guild*, and the third as an organization under the direction of the feudal lord. It is curious to note how in 1725 M. Félibien in his “Histoire de la Ville de Paris,” misinterpreted the origin of the *Livre des Métiers* on the basis of this latter theory, attributing too much of the slow development of an *organism* to the shaping hand of Boileau. He says: “E. B. rangea tous les marchands et les artisans en differens corps de communautéz, sous le titre de confrairies. Ce fut le premier qui leur dressa des Statuts, qu'il fit ensuite approuver dans une assemblée des principaux bourgeois de Paris. Les prévôts successeurs de Boileau adjoustèrent de nouveaux réglemens aux premiers, et il en fut fait en recueil.” . . . The prevalent theory of the gilds' origin is that they were born spontaneously from the needs of the people, that they were a natural line of development for youthful industry, in self-protection, to take.

Charters or privileges claimed by the gilds date from the 11th century, though they are most abundant in the 13th. The most ancient charter published in the *Recueil des Ordonnances* is that of the chandlers of Paris, dated 1061. This document, however, is now supposed to have been forged in the 15th century. From 1121 dates the first charter of the *marchands de*

¹Fagniez: Documents relatifs à l'Histoire de l'Industrie, etc. Intro.

l'eau de Paris. In 1160, Louis the VII gave to Thèze, wife of Yrves Lacohe, and her heirs, the 'mastery' of five gilds which dealt with leathers, the tanners, the curriers, the shoe-makers, the leather-dressers, and the purse-makers. In 1162 come new privileges granted in regulation of the bakers. In 1183 Philip Augustus rented *a cens* four houses which he had confiscated from the Jews, to the drapers' gild. A lord in 1219 sold the confrérie of cloth-merchants a house, and gave them the leases of several adjoining houses.

The book which is the object of this study—the *Livre des Métiers*, owes its origin to a capable official of Louis IX, Étienne Boileau. He was appointed prévôt of Paris about 1260.¹ This official had the rank of the first bailiff of France. His 'office' was the Châtelet, where he judged in person the greater part of the civil and criminal cases in Paris and the *vicomté*; he was judge of appeal from the feudal nobles and ecclesiastics who still had fiefs in Paris. He had charge of the military service, of the policing, the finance and 'justice' of Paris and its suburbs. This official, or the holder of this office, "who administered with firmness and loyalty," wished to correct the faults incident to the jurisdiction over the gilds, by establishing in writing the 'constitution' of each gild. The masters of the gilds accordingly presented their regulations, and the result is a register of the laws and customs of 101 craft-gilds of Paris.² Some of the privileges or implied immunities pretend exceeding antiquity. The stone-cutters claim immunity from the duty of the watch from the time of Charles Martel. Upholsterers cite privileges granted by Louis the VII, and the bakers claim from Philip Augustus the right to exclude 'foreign' bakers (i.e. bakers from outside Paris), from the markets except on Saturdays. What we have then in this invaluable *Livre* is a cross-section of the commercial and industrial life of Paris in the third quarter of the 13th century. A study of this manuscript will show a vivid and complete picture of the working class, and, by implication, of the upper nobility's commercial habits.

¹Levasseur: *Hist. des classes ouv.* p. 251.

²For a list of these gilds with their ancient French names and their modern English equivalents, see *Appendix*.

The gilds were composed of three grades of individuals: apprentices, *valets*, and masters. The term *ouvrier* was applied in general to all the divisions, even more loosely than our term *workman*.

The apprentice, though considered as a member of the gild, was not of the corporation until his apprenticeship was over. The term was begun by a contract between master and aspirant. Usually this contract was oral, because the writing of a document was too expensive a process. At any rate, it was always a mutual engagement, sworn to, before the Jurés, an engagement which imposed on both parties mutual duties which neither should attempt to evade. A regulation concerning the agreement runs as follows: "The master who takes an apprentice should summon to the ceremony of the contract two masters and two *valets*, to hear the agreement made between master and apprentice, and it is fitting that the *master who guards the gild* should be called also." The Jurés before authorizing the contract, were supposed to make careful inquiries as to the ability and the financial position of the master.

About forty of the gilds were allowed to have as many apprentices as they liked. Among these were the corn-dealers, the gold-beaters, the ale-brewers, green-grocers, farriers, drawers of iron wire, millers, shoe-makers and the *barilliers*. Usually, however, the number was limited to one or two. The mercers, the fullers, weavers of silk-stuffs, knife-handle and blade makers were allowed to have two, while the rope-makers, pewterers, precious stone dealers, braid-makers, drapers, gold-smiths, and shield-makers contented themselves with one. The motives for such limitation were at least *double*: the altruistic reason was that the master should not have too many to teach well; the self-protective reason was that the gild should at no time be swamped in competition by too many (prospective) masters.

The term of apprenticeship was also most scrupulously fixed. The conditions are usually a definite term without payment of fee or a term gradually lessened according to the increase in the size of the fee. The haberdashers and the pewterers could fix the duration of apprenticeship at will; other terms vary from 3 to 8, to 10-12 years, with fees varying from 20 Parisian sous (5 fr.) to 100 Parisian sous (20 fr.), by means of which the apprentice could buy off part of his time

of service. There seems, however, to have been no attempt to make the time directly proportionate to the costliness of the raw material and the difficulty of the process, or the skill required in the craft. The rope-makers require an apprenticeship of 4 years, the brass-wire drawers 6 years, the chest-makers 7 years, the makers of iron shields 8 years, the curriers of shoe-leather 9, the jewellers 10, and the coral and shell bead-makers 12 years. The wool-weavers demand 4 years plus 4 *livres*, 5 years and 3 *livres*, 6 years and one *livre*, or 7 years without fee. Power over the length of term resided of course in the hands of the masters, and the rules contain only the minimum requirement. We read, "No one can or ought to take or have more than two apprentices, and he cannot take them for less than 7 years of service and twenty *sous* of Paris, which apprentices must give to the masters; or at 7 years without money, but more money and longer service he can require if need be." How irrational the terms were may be seen from the fact that while the goldsmith's term is 10 years, the brass-wire drawers (a far less "skilled" gild) required 10 years and 20 *sous*, or 12 years and no fee, and that of three bead-making gilds, one demanded 6 years and 46 *sous*, another 10 years and 46 *sous*, and the third 12 years without possible shortening of the term. If the apprentice, however, bought off part of his regular term, the master was not permitted to take another apprentice till the complete period was over. An extra apprentice was sometimes allowed if the wife of a master knew the trade. "No one of the craft aforesaid can have more than one apprentice, and if he has a wife, can have only one if she does not know the trade, but if the man and the woman know the trade, they can have two apprentices, but they can have as many *valets* as they wish." Among the masons, a Juré could have two apprentices, the other masters could employ only one.

Exceptions to rules of apprenticeship were made for the sons of masters, or of their wives, and in this beginning of family privileges, we see foreshadowed the tyranny of the close-corporation control of the gild in latter centuries. All the sons of the master and his wife, if she knows the trade, may rise to the 'mastery' usually with no fixed term of apprenticeship. If the children were illegitimate, no privileges were granted them. In the case of the goldsmith we see still wider family privileges, for we read "of his lineage and of the

lineage of his wife, whether distant or close, he can have as many (apprentices) as he wishes." The wool-weaver was allowed in his house two large looms and one small one for himself and for each of his married sons, and one loom each for a brother and a nephew, if they "knew how to work with their hands." In the gild of the iron shield-makers and several others, appears the obligation of teaching the son of a poor master or his orphans free.

The conditions of the contract of apprenticeship shed much light on the lives of these little workmen, and the statutes recognize the possibility of their being led astray by "*leur folour et leur joliveté*." The apprentice, we are told, should obey all the orders of the master, and not complain without justice of the master's oppression to the *prud'hommes* of the gild. He had to clean the workshop, run errands for the family and for the business. That apprentices were not always docile, nor their circumstances congenial, the many rules dealing with their flight suggest. An apprentice who had taken flight from his master could not be received into the workshop of another member of the gild until the complete period of his apprenticeship contract had elapsed. The *pâter-notriers* had to wait a year and a day after the flight of an apprentice, and the tablet-makers 26 weeks, before taking in another. After three attempts to escape, all obligation between gild and apprentice ceased. "And this regulation the *prud'hommes* of the gild make to restrain the folly and jollity of the apprentices, for they do great harm to their masters and themselves, when they run away; for when the apprentice is enrolled to learn, and runs away in a month or two, he forgets as much as he has learned, and thus he wastes his time and does harm to his master." The wool-weavers and the locksmiths insisted that the escaping apprentice pay the master what his training had cost.

The statutes recognize the right of the master to sell the apprentice to another master under certain circumstances. "No cutler can sell his apprentice unless he (the master) lies on a bed of sickness (*lit de langueur*), or is going across seas, or is leaving the gild for good or does it because of poverty."

The master's obligations to the apprentice consisted in lodging, feeding and clothing him and in teaching him the trade. That masters did not always scrupulously abide by

these duties, various law-suits and *régles* attest. Only the tablet-makers and the important wool-merchants, provide, in their statutes, for a defence of the apprentice's rights. There we find that if the master fails in his duties, the gild masters, upon complaint of the apprentice, "must admonish the said master, and if he does not comply, they must seek out a new master for the apprentice." In another place, we learn of a fine imposed on the master who provoked his apprentice to flight.

A decree from the Châtelet: 3 Sept., 1399, gives a living vignette of these domestic relations a century after our period.¹ "We have enjoined and commanded the said master that he treat the said Larin, his apprentice, as the son of a *prud'homme* should be treated, and that he abide by the matters contained in the said contract, without having him beaten by his wife, but that he should beat him himself if he misbehaved." In the same year also a father succeeded in breaking his son's contract because the goldsmith, the boy's master, by hitting him with a bunch of keys, had "made a hole in his head."

The possible marriage of an apprentice during the term of his service is provided for thus: "If any apprentice marries during the time that he has promised to serve his master, and does not wish to eat dinner and supper with his master, he ought to have four deniers every working day for his support."

It is not very clear from our texts, whether an examination at the end of his term was usual or infrequent. Only rarely is the demand for a *chef-d'oeuvre* mentioned. The saddle-bow makers claim that after an apprentice has made his *chef-d'oeuvre* he should become more important in the workshop "so that his master may not send him out into the city to fetch his bread and his wine just like a boy." The goldsmith's statutes provide that if he becomes skilful enough to pay his expenses and to earn 100 *sous* a year, he may be freed from his contract and allowed to earn a salary. At the end of the period, however, *any* apprentice must declare before the Jurés on his oath that he had fulfilled his term according to contract.

¹Fagniez: *Études sur l'industrie à Paris*, p. 67.

To our mind, the apprentice system here revealed does not seem devised for the best interest of the child. Too much power for good or ill lies with the master. If he so wishes, there seems to be little to prevent his letting his charge remain in a state of childish and unprofessional ignorance. The long term of service, the wide power of master upon man seem devised to add to the master's profits, not to his charge's skill.

The *valet*, *sergent* or *aloué*, i.e. hired man, was an individual who had finished his term of service as apprenticeship but had not yet risen to the dignity, as master, of having an establishment of his own. Women of this grade, in gilds to which they were admitted, were called *chambrières* or *meschinnettes*. Usually the master could have as many valets as he wished, but occasionally the number was limited so as to prevent rich and attractive workshops getting many valets, and, accordingly, something approaching a monopoly of the trade.

A *valet* who had been trained outside Paris had to present evidence that he had done the preliminary term elsewhere. Of such a man, too, it was possible to require a kind of surety or testimonial of a fair dismissal from a former employer. Evidently the narrow mediaeval view of protection of home industries led to the discriminations against workmen from outside, for we read, "It is ordered and decreed that no person of the said gild should hire any foreign man so long as he can find a workman who is a member of the gild." Care was taken too that disgrace and scandal should not fall upon the gild through *valets* of bad character. *Rêveurs*, scoundrels, murderers, knaves, thieves, men of ill fame" are stipulated as improper candidates, and a wool-weaver whose relations with a woman were a by-word "was sent out of the city and forbidden the trade until he should amend his character."

The length of the term of hire is not definitely stated in our regulations, and it varied from a day, a week, a month, to a year. In the morning all unemployed valets assembled early in a designated street or square. There they were to stay until the bell from a certain church sounded. No private individual could hire an artisan. If a bargain was made, the valet went to the house of his employer at dawn and stayed under usual conditions till sunset. The hours accordingly varied largely, from 14 hours in summer to 8 in winter. Very few *valets* lodged and ate with their patron. They 'went out' in search of

their noonday-meal with the provision that, after it, they should not loiter to wait for a fellow-workman. If the gild was one which allowed night-work, and the master desired it of him, the *aloué* must comply for a raise of pay. Sometimes the *valets* rebelled against this compulsion, and were threatened by the magistrates for this attempt at industrial freedom. In only one case is vacation mentioned, but as we shall see in discussing the *chomage*, there was little need of it. The brass-wire drawers stipulate, however, that the workmen may have a vacation in the month of August if they wish.

Women were admitted to membership in gilds where their delicate skill and taste made them useful. In 1292 the group dealing with embroidery was composed of 81 women and 12 men.

Occasionally conditions of employment are stated with more detail. A rule of the sword-cutlers runs this: "No¹ master should take a *valet* to work unless he has five sets of clothes with him in order that the workmen may look neat in case the nobles, counts, barons, knights, and other good folk should at any time come into the work-room." The *valet* could not be dismissed unreasonably, and rarely the provision is made that two valets and two masters must agree upon the dismissal before it could take effect. After a year and a day, the valet could have his wife come and work with him, if the gild admitted women.

A considerable distinction between masters and *valets* already existed, though in the smaller organizations the gulf was less apparent. There were no large factories in the modern meaning, and in a small workshop conditions of equality were more likely to obtain. Several facts show, however, that the *valets* in some places were beginning to feel themselves a distinct industrial class. Infrequently they had their own confrérie and their own jurés. The masters in some cities already foresaw the possibilities of a kind of class-struggle, and at¹ Beauvais punished with imprisonment and fine men who attempted combinations in the hope of raising wages. In 1280 at Ypres, workmen rebelled against an ordinance adding

¹Réglemens sur les arts et les mét. ed. Depping, p. 366.

¹" Coutumes de Beauvaisis." Beaumanoir, éd. Beugnot; p. 429.

one hour to their working day, and in their rioting killed the mayor. Of course they were severely punished. (But how modern these actions prove our industrial class of the Middle Ages to be.)

The obtaining of the mastership or mastery of a gild, i.e. the right to set up a workshop, to go into business, depended on certain qualifications in the aspirants, and certain formal ceremonies, necessitated by the organization of the gild, and its (frequent) feudal relationship to the king or his official. The first requirement was skill, acquired during service as apprentice and *valet*, capital, upright character and good conduct. Most of the sections have such an article as "*Quiconques veut estre de tel mestier, estre le peut poertant qu'il sache le mestier, et ait de coi,*" and an article of the *drapiers* reads: "*Il conviendra qu'il sache faire le mestier de touz poinz, le soy, sans conseil au ayde d'autrui et qu'il à ce examiné par les gardes du mestier.*" The cook's regulations require that the son of a master have an expert in his bake-house until the masters judged the son skilful enough. This article was evidently designed to counteract the carelessness of regulation of the apprentice-work of sons. The formal requirement was the purchase of the right to trade. At the most 25 gilds were required to purchase this right, the rest were "free." Among these who purchased were the bakers, the criers of wine, the retailers of bread and vegetables, the farriers, the cutlers, lock-smiths, weavers of silk cloth, masons, hose-makers, poulterers, potters, old-clothes dealers, purse-makers, saddlers, shoe-makers, glovers, and fishermen. The necessity was created by the fact that about 30 of the gilds were fiefs of the king, and accordingly could be reserved for himself, or bestowed upon his favorite officers. In general, however, those the king retained for himself, notably, the dealers in food-necessities, were free of purchase.

After purchasing the right from the king, the aspirant had usually to present himself within a week to be admitted to the corporation. At a solemn meeting the masters or jurés "read loudly" and explained the regulations. The recipient of the privilege then swore by the saints' relics that he would keep the laws and carry on his profession carefully and loyally. Initiation fees were of course variable; the criers paid the jurés 4 deniers (0 fr. .45), the silk-cloth weavers and hose-

makers 10 *sous* (2 fr. .50) ; the *épiciers* paid 5 *sous*² *pour boire* to their companions. The time for paying this fee also varied. The curriers of shoe-leather were allowed to pay their fee a year and a day after establishment, while the bakers were restrained only by a limit of four years. The widow of a master was generously permitted to carry on the business in his stead, though usually if she remarried a stranger, i.e. a man outside the gild, she forfeited this right.

M. Lespinasse makes an interesting distinction in affirming that the mastership was not a rank, but a privilege; it was not a case of 'once a master, always a master.' Upon the relinquishment of the activity and privileges implied, a master became an artisan, and, for instance, the hose-makers assert that 35 masters among them have fallen into poverty. The master with all his attempts to protect his position and rights, bore the not-light burden of taxation from which the *valets* were directly, at least, exempt.

The internal administration of the gild was performed by officers called *jurés* or *prud'hommes*, and the external relation of the gild in its dealings with other gilds or the city was supervised by the Crown or the Crown official who held the gild in fief. The *jurés* were also called *gardes*, *syndics*, *éswards*, *élus*. The typical method of choice was the election of a certain number by the masters of the gild, and their ratification and investiture by the Provost of Paris or other Crown official. Sometimes, however, the Provost or Crown officer appointed the *guards* with no semblance of suggestion, in theory at least, from the gild itself. Occasionally the election was wholly in the hands of the *community*. Sometimes the departing *prud'hommes* nominated their successors. Among the haberdashers, failure to serve, if one were elected, called down upon him a fine of 10 livres (134 fr.). The term of office was usually a year. The goldsmiths, however, changed their officers only every three years. The fullers, who had two masters and two *valets* as officers, changed them at Christmas and at St. John's Day. Before the Provost, the *valets* named two masters, and the masters two *valets*, for service, a *nice* balance in the interest of just administration. Women were allowed

²It has been estimated that four *sous* of Paris of this period are equivalent to one franc at present.

offices for such gilds as they were important in. The workers in silk-stuffs had three masters and three mistresses; the weavers of kerchiefs three *maîtresses*.

In being invested with office, the jurés, for instance, of the bakers swore on the relics of the saints that they would 'guard the gild' carefully and loyally, and that in appraising bread, they would spare neither relatives nor friends, nor condemn anyone wrongly through hatred or ill-feeling. The chiefs of the gilds scrutinized the quality of the products, denounced frauds and infractions of the rules, presided at solemn conclaves of the gild, and represented it before the law. They presided at the contract of apprenticeship, received the oaths of artisans and masters, and administered the funds of the corporation. In case of appeal from the jurisdiction of the jurés, the Provost of Paris was the first authority, and above him was the *Parlement de Paris*. On the lands of a feudal lord, the latter usually retained the privilege of administering petty justice.

The question of remuneration to the jurés for loss of time naturally arises. Usually a definite fraction of the fines was awarded to them. Besides, too, the honor which accrued to them, exemptions from the duty of the watch and from certain of the fines of the trade, are mentioned.

Most gilds had officers of only one rank upon whom all the duties fell. Occasionally discrimination was made, and two superior officers chosen from the masters held the power of handing down decisions while their *valet*-assistants exercised supervision, and reported infractions of the rules to the masters. Perhaps the most frequent number of *jurés* in a gild was two or four. The armorers, the ironshield makers, the potters, the rope-makers, bead-makers, gold-beaters, braid-makers, spinners of silk, etc., had two, the fullers, the tallow-chandlers four. The brass-shield makers were so few that they did not elect a juré, but asked the Provost to hear their cases directly. Only one *guard* is mentioned in the statutes of the clasp-makers and the flower-hat makers. The curriers have three, the farriers six, the goldsmiths two or three, the head-dress makers eight, and later only four. The bakers and the retailers of fruit and vegetables had twelve officers.

The most feudal feature of the craft-gild organization is, perhaps, the dependence of the gild on the Crown or its offi-

cials or vassals. Most of the gilds were dependent upon (rele-vaient à) the Prévôt de Paris. To him the *prud'hommes* carried complaints, against other gilds, for example, and it was he who appointed a *prud'homme* to execute for him the functions suggested above. We have seen that Louis the Younger granted to a woman the 'mastery' of five gilds, which remained enfeffed to the sixteenth century. The grand pantler was the judge of the bakers, and each year appointed a master to look after the gild. The grand chamberlain looked after the wool-weavers, haberdashers, tailors and upholsterers, and others who had to do with clothing and furnishings; the cup-bearer (*échanson*) had the wine merchants, and the *maréchal* the smiths, farriers, helmeters, locksmiths and other iron-workers. The grand butler tried to keep order among the wine-shop keepers. To his mason, Guillaume à Saint Patrie, the king confided the masons, stone-breakers, plasterers, etc.

Exact hours for work were not set down; the time of the world in which the artisan lived was too entirely dominated by the custom of the Church to permit of hours being designated as 7 a.m. to 5 p.m. "No one of the gild," we read, "ought to work on holy days which the people of the city keep, nor on Saturdays during *charnage* (i.e. the time during which it was permitted to eat meat) after Vespers, nor after Compline on Saturdays during Lent, nor at night at any time of the year." During Lent, Vespers fell at 6 o'clock, and Compline at 9. *Charnage* was used loosely to mean not only the period during which meat could be eaten, but also the period of short days, while *Carême* meant the period of long days. Night work was expressly forbidden for goldsmiths, sheath-makers, weavers, braid-, chest-, buckles-, beads-makers, pewterers, lamp-makers and locksmiths, "for the light at night does not suffice for the trade[s] aforesaid." Millers and brewers could work day and night, and it was permitted to all farriers (but not to locksmiths and cutlers), to goldsmiths, lamp-makers, brass-wire drawers, to cast, if need be, during the night, inasmuch as the process sometimes lasted a day or a week. The restriction upon night-work was ineffective if the work were for the household of the King, the Queen, the Princes of the blood, the Bishop of Paris, and other great Lords.

The Church's observance of Sundays and fastdays (holy days) caused among the gilds much cessation from work—

chômage. The eve of Sunday and important holy days, work was stopped at *Nones* or *Compline*. On Sunday the baths were not heated, on Sunday the bakers did not make bread, and kept, besides, twenty-six fast-days and the day of their Patron Saint. The goldsmiths, the haberdashers, the felt-hat makers, took turns within the gild in keeping their shops open on Sunday. The *barilliers* and the armorers worked without restriction on the ground that their work was vitally important to noblemen. A saddler could repair a shield or a harness on Sunday, and rose-chaplets could be made at any time "during the season of roses."

Inasmuch as the policy of the gilds proscribed the action of free competition, it was necessary for them, in order to sustain their reputation, to provide in some way, that the products should be exactly what they pretended to be. To this end they legislated carefully as to the quantity and quality of raw material to be used, and provided for supervision through the stages of manufacture to the sale of the finished product. The *cervoise* (a drink somewhat resembling ale) should have no constituents save grain and water. The beater of metal-leaves must have a certain alloy of gold in his silver leaves. The bead-makers must not string beads which are not perfectly rounded. The haberdashers complain of the appearance of "several pieces of bad work to the damage of all the common weal, every day, by reason of the lack of proper restriction." At Amiens,¹ the locksmiths were forbidden, for fear of thievery, to make a key unless the lock was produced, and the butchers to *souffler la viande*, to mix tallow in the lard, to sell dog, cat or horse flesh. In Paris, boxes whose locks were made with 'hinges' were summarily burned, and fines were incurred for putting old locks on new furniture and new locks on old furniture. Trimmings of silver were forbidden on bone knife-handles for fear the makers should sell them for ivory, and knife-handles must not be covered with silk, brass- or pewter-wire, lead or iron, because inside, they were only deal, and might deceive an ignorant buyer. Hemp and flax must not be used in the same rope.¹ If a tailor spoilt a valuable piece of cloth by bad cut-

¹Comm. d'Amiens, Doc. inédits, p. 387, p. 370.

¹Lev.: Hist. des classes ouv., vol. I, page 116.

ting, and the *gardes* ascertained it, he had to make restitution to the client, and pay a fine, 3 *sous* to the king and 2 *sous* to the *confrérie*. If an artisan did the spoiling, he paid the master, and worked for one day, without pay, for the *confrérie*.² Chandlers seem to have been especially open to temptation. Too heavy a weight of wick is expressly regulated against in the provision that four pounds of tallow should carry only a quarter-pound of wick. Wax tapers must not be adulterated with tallow.

Gilds in danger of usurping each other's business were jealous of privileges. A tailor must not mend old clothes, nor a rag-man make new clothes. A curious controversy arose from the fact that clothes restored by the old-clothes dealers were frequently mistaken for new. It was finally decided that this latter gild must not press, fold and hang old garments for fear of this deception.

The visits of the *gardes* were at unexpected times, and almost all the gilds require their inspection of saleable articles "poer sauvoir se il i a nulles mesprantures." The *gardes* of the weavers carried an iron rule on which was marked the length of various kinds of cloth, as it was fixed by law. Goods which did not comply with the statutes were confiscated, burned or given to the poor, while the culprit paid a fine. To make sure that no bad product elude the vigilance of the guards, further regulations as to the place of manufacture appear. A wool-weaver could not have two shops on either side of the street, though we have seen how liberal he might be as to the number of looms. An armorer was not to get anything necessary for his trade made outside the shop, therefore he was forbidden to carry armor through the streets unless he were poor and lived in an out-of-the-way quarter where sales would be difficult. The tailor must not cut his cloth except at a window of the first floor of his shop.

Fines ranging from three to ten *sous* were the natural consequence of faulty production. The corrupt gold-beater paid 3 *sous*, the jewellers, who dared use colored glass, 10 *sous*, the dealers in silk-stuffs paid 8 *sous*, of which 5 went to the King, 2 to the Master, and 1 to the *Confrérie*. In 1312, dealers in

²Ordonnances touchant les mét., 1312. Art. 5.

spices who purveyed *fausse merchandise* were condemned to lose their commodities, and to pay, besides, 60 *sous*: "40 to us (i.e. the King, or to the lord of the place where justice is done), and 20 *sous* to the master of the gild at or near the place where the offence is committed"—to pay the expenses of the gild. As a further guard against adulterated products, most of the gilds had a mark or a seal which carried a guarantee of quality commensurate with the reputation of the gild.

Before goods could be sold, those who had the right to weighing and measuring apparatus in their own houses, must have these sealed by the measurers and gaugers' gild. Others must use the scale of the king or his vassal. Most goods were sold on Friday and Saturday, when the merchants shut up shop and went to the *Halles* where markets were held. As a rule, the gilds were opposed to the hawking of their goods—*col-portage*; they preferred the more regular custom of the stalls of the market. Here, too, they succeeded in legalizing their privileges against foreigners. For example, the bakers succeeded in preventing the sale of all 'foreign' bread in the city except on Saturdays. The municipality also watched after its own interests in the interests of the crafts. Merchants were forbidden to leave the city before the opening of the Fairs, and sales must be transacted only in the square of the *Halles* after a stroke from the great bell. The craft organizations themselves were much afraid of possible monopolies. The weavers, dyers and fullers are expressly forbidden to enter into combinations to fix a price on goods or a monopoly on materials "so as to prevent the people of the gild from having work according to their means." The retailers of produce were forbidden to arrange for commodities in advance. "Retailers ought not to buy in advance of any merchant carriage-loads or consignments of eggs and cheeses, deliverable at his next trip, or after any delay whatsoever"; such transactions are wrong because they offer too much uncertainty and too many frauds in the conditions of delivery. The mediaeval man feared 'corners,' for he felt "the rich will sell back everything, as dear as it pleases them to do."

In the market "good form" must be observed between members of the same gild. One member must not intrude before a sale is consummated. "If anyone is in front of the stall or window of a cook to buy or bargain with the said cook,

and if any of the other cooks call him before he has left the stall or window of his own will," the fine will be 5 *sous*.

For the privileges implied in the gild structure, the feudal authorities demanded a return in the form of taxes. The gild-masters bore the burden not only of the civil taxes which all citizens shared, such as the *taille*, the *conduits* and *péages* (tolls), but also special commercial taxes such as the *hauban*, the *tonlieu*, and the *coutume*.

The *hauban*, according to *Livre des Métiers*, Section I, Art. 7, "is the name appropriate to a tax assessed from ancient times, by which it was established that whoever should be a payer of *hauban* would have more freedom and less taxes to pay for his right of trade and commerce." It was a sort of agreement offering the advantage of combining in one payment a large number of daily dues. For this privilege the bakers owed 6 *sous*, the retailers of bread and salt, 3 *sous*, the butchers 6 *sous*, the fishermen, purse-makers and curriers 3 *sous*, the glovers 3 *sous*, 8 *deniers*, and the old-clothes men 6 *sous* and 8 *deniers*.

The *tonlieu*, also called the tax of buying and selling, was the real tax on trade. At every sale, the merchant and the customer owed a small per cent. of the purchase to the city or lord who controlled the market. About twenty chapters of Part II in the *Livre des Métiers* are devoted to an elaborate schedule of this tax which varied according as the scale was at shop, fair or market. In general, M. Lespinasse estimates, the *tonlieu* equalled 4 *deniers* per wagon-load, 2 per cart-load, 1 *denier* for beast-of-burden's load, and 1 *obole* for a man's load.

The *coutume* was very irregularly shared; it usually fell due at several times through the year. So the bakers owed 6 *deniers* at Christmas, 22 at Easter, and 5 at St. John's Day, and a *tonlieu* of 11½ *deniers* in bread or money per week. The retailers of produce also owed these taxes if they dealt in bread. At any earlier period, the *coutume* was always paid 'in nature,' i.e. in the product itself. Accordingly, the hay-merchants owed a box of new hay every time the King entered the city. The wooden-utensils makers furnished seven casks, two feet long, towards the up-keep of the King's cellars, and for this service they were excused from the watch. The farriers owed at first the *fers du Roi*; i.e. they had to keep the saddle-horses of the court well shod. But later this function was compounded in

terms of money, due to the royal maréchal in consideration of which he had the horses shod.

Another feudal obligation irksome to some of the gilds was the personal "duty of the watch"—the *guet*. As the masters of the gilds were alone responsible for this important service, it was also called the *guet de métiers*. Each gild had its turn about every three weeks, when the masters must go at nightfall to the Châtelet and answer the roll. The watch then lasted from curfew till the next sunrise. Usually the gilds which served the aristocracy most directly were exempt from this duty. Among these were the goldsmiths, *barilliers*, armorers, painters, sculptors, bow-makers, flower- and plumed-hat makers, and haberdashers. How irksome this duty had become may be inferred from two statutes in the *Livre des Métiers*. The garment-cutters say:

"The *prud'hommes* of the said gild beg that they be relieved from (the duty of) the watch, if it please the King, on account of the fine clothes which they have to make and keep over night which belong to gentlemen, and on account of the large number of strange workmen whom they could not entirely trust to take care of things, and because they have to cut and sew clothes for gentlemen both day and night in view of the gentlemen and strangers going away at once, and because they have to return the garment which they make in the evening, on the morning of the next day."

The old-clothes dealers have two intimate and vivid articles. Art. 33: "No one who is 60 years old, nor those whose wives are with child, so long as they be ill, and no one who has been bled, if he has not been summoned before he had himself bled, and no one who is going out of the city, if he has not been summoned before he goes out, need to share the watch. But they must inform him who has charge of the watch for the King, by means of their men or their neighbors."

Art. 34: "And the *prud'hommes* of the gild say that they are grieved that, for 10 years back, those who have charge of the guard for the King, have not been willing to receive the excuse from the above-mentioned service from their neighbors and their workmen, but make come their wives themselves, either fair or ugly, either young or old, or feeble or fat, to convey the excuse to the lord, a thing which is most ugly and most grievous—that a woman should stay and sit at the Châtelet

from curfew so long as the watch is out, and then go away with her son or her daughter, or without either of them, through strange streets to her home, and through this message-bearing wrong, sin, yea, villainy has been done."

Confrérie is a word not very widely used in the *Livre*. Seventeen of the gilds display this organism. It served to systematize the religious impulses of the gild-men's lives and also to control the benevolent activities of the older structure. The tablet-makers require all salaried workers to join the *Confrérie*, and at a death in the gild, a man or woman from each workshop must follow the corpse or pay a fine of $\frac{1}{2}$ pound of wax. The *confrérie* usually centered its activity in a church or chapel in the district where most of the members lived. The *confrérie* of the furriers and the upholsterers shared *l'Eglise des Innocents*; the masons attended the *Chapelle de St. Bleive*; the bakers *St. Pierre aux Liens*, and the wine-merchants and brass-shield makers St. Léonard's chapel of church *St. Merri*. The confraternity usually put itself under the protection of a particular saint. The goldsmiths chose *St. Eloi*, and the confraternity had a seal inscribed "Sigillum confratrie sancti Elegii auri fabrorum."

The *confrérie's* resources were usually derived from initiation fees, subscriptions and legacies from members, and a share of the fines collected in the gild. The organization also derived benefits from holding real estate. It could transact business and fall in debt. The *confrérie* of the wool-weavers owing 600 pounds, put a tax of 12 *sous* on every piece of cloth manufactured in Paris. A statute of the plasterers reads: "If he finds that the proportion is not good, the plasterer shall pay five *sous* as a fine: to the Chappelle Bleive aforesaid, two *sous*, to the master who guards the gild, two *sous*, and to the one who has measured the plaster 12 *deniers*." When a plasterer took an apprentice for less than six years, he paid 20 *sous* to the Chappelle.

Part of the funds acquired by the *confrérie* were used for common expenses, and part for benevolent work. For every piece of cloth sold the wool-merchants were supposed to give a denier to buy grain for the poor. The rich confraternity of the goldsmiths gave every Easter a dinner to the poor of the Hôtel Dieu, while the cooks set aside a third of their fines to maintain "les pauvres vieilles gens du mestier qui seront de-

chez par fait de marchandise ou de vieillesce." In 1319 the vair-furriers formed an association² with an initiation fee of 10 *sous* (8 fr. .40) and 6 *deniers* for the secretary, and a weekly subscription of one *denier*, the funds of which were to aid members in case of sickness or infirmity at the rate of 3 *sous* per week during illness, and 6 *sous* in convalescence. The curriers mention the use of funds from "la boîte" to support the orphans of the gild or children of poverty-stricken masters.

At the first appearance of the *confrérie*, the Church opposed it, suspecting in its secrecy, antagonism or some outcroppings of pagan ritualism.¹ Later, however, both Church and *confrérie* profited by a close relationship. The monastery of St. Trond, in return for the right to fall heir to the properties of members of the shearmen and fuller's *confrérie* who died without wife or child, maintained a hospital for the care of its sick, and conducted funerals, while the sacristan and a priest arbitrated on the occasion of disputes within the gild.

Conclusion. The trade-gild régime was a defensive one against the confused powers of feudalism and the conflicting activities of competition. It protected the apprentice against his own folly and his master; it protected the artisan against diminution in the pay-rate, illegal dismissal, and the usurpation of other trades on his field. It guarded the master from insubordination, idleness, bad measure and adulteration, and by the limitation of the number of workmen assured the sale of his goods.

Some of the principles implied in the organization we may agree with M. Lespinasse¹ are "relatively true," such as the protection of infant industry, guarantee of work and property, examinations and probations to make certain the skill of the candidates; prohibition of combination of several professions to prevent the abusive use of them; supervision of manufacture to assure the soundness of the product; an indus-

²Fagniez: "Etudes sur l'industrie," p. 290. Text in *Doc. relatifs*, No. 19.

¹M. Lespinasse quotes the text of a decree against *confrérie* from a Council at Rouen, 1189.

¹*Liv. des Mét.* Avant Propos par M. Lespinasse, p. xiv.

trial jurisdiction from apprenticeship to mastery, lack of division in a craft such as to train in time a fully equipped workman and a future master; suppression of any parasitic intermediary between producer and consumer; work in common and in the public eyes, and solidarity of the industrial family.

On the other hand, there are shadows in the picture, and among them we may distinguish—the immoderate extension of term of apprenticeship, difficulties set in the way of becoming a master; arbitrary fiscal measures and dues; meticulous regulation and too frequent cessation from work; a routine transmission of methods of manufacture; maintenance of a fixed price, and prohibitions of combinations such as would encourage inventions and stimulate a wider economic unit.

We have studied a particularly agreeable phase of gild growth. Far off still is the bad opposition between employee and employed, though the pessimist may see the seeds of the present in this past. Though one hesitates to call with M. Fagniez the spirit of the gilds “fundamentally Christian,” he is glad to recognize such alertness of intelligence, such elaborate industrial devices and purposes, such thoughtful humanitarian interests, so complex a system of checks and balances in our supposedly naïve mediæval precursors.

APPENDIX.

Archiers=bow-makers.	Boursiers=purse-makers.
Barilliers=case-makers.	Boutonniers=button-makers.
Battéurs d'or=gold-beaters.	Brachiers=breeches-makers.
Batéurs d'estain=pewter-beaters.	Cavesonniers=slipper-makers.
Batéurs d'or en feuilles=gold-beaters.	Cavetiers=cobblers.
Batéurs d'archal=brass-beaters.	Cervoisiers=ale-brewers.
Baudraiers=curriers of shoe-leather.	Chandliers de sieu=tallow-chandlers.
Blatiers=corn-merchants.	Chanevacieriers=hemp-cloth-makers.
Blasenniers=saddle-fixtures.	Chapeliers de fleurs=flower-hatters.
Boîtiers=locksmiths.	Chapeliers de coton=cap-makers.
Boucliers de fer=iron-shield-makers.	Chapeliers de paon=plumed hatters.
Boucliers d'archal=brass-shield makers.	Chapeliers de feutre=felt-hatters.
Bourreliers=harness-makers.	Chapuiséurs=saddle-bow makers.

- Charpentiers=carpenters.
 Chauciers=hose-makers.
 Couréurs=belt-makers.
 cordiers=rope-makers.
 Corduaniers=shoe-makers.
 Couteliers=cutlers.
 Couteliers serves=knife-blade-makers.
 Crespiniens=head-dress-makers.
 Crieurs=criers.
 Cristâliers=jewellers.
 Cuisiniers=cooks.
 Cyrugiens=barbers.
 Déciers=playing dice-makers.
 Drapiers=woollen-weavers.
 Escueliers=pottery-sellers.
 Espinguiers=pin-makers.
 Estuvéurs=bath proprietors.
 Faiseurs de clous=nail-makers.
 Fainiers=hay merchants.
 Fermailleurs=clasp and buckle-makers.
 Fripiers=old-clothes men.
 Feseresses de chap d'orfois=modiste.
 Fourreurs de chapeliers=fur-hatters.
 Fevres=iron-workers.
 Fileresses de soie=spinners of coarse silk.
 Fileresses de soie à petits fuseaux=spinners of fine ilk.
 Fondeurs=smelters.
 Foulons=fullers.
 Fourbisseurs=sword-cutlers.
 Gantiers=glovers.
 Gueiniers=sheath-makers.
 Haubergiers=coats-of-mail-makers.
 Huilliers=oil-makers.
 Jaugéurs=gaugers.
 Laciens=braid-makers.
 Lampiers=lamp-makers.
 Lanterniers=lantern-makers.
 Liniers=linen merchants.
 Lormiers=reins-makers.
 Maçons=masons.
 Marchante chanvre=hemp+thread sellers.
 Maréchaux=iron-farriers.
 Merciers=haberdashers.
 Mesuréurs=measurers.
 Meuniers=millers.
 Orfèvres=goldsmiths.
 Ouv. de menues œuvres d'estain=pewterers.
 Ouv. de tissu de soie=workers in silk-stuffs.
 Ouv. de drap de soie=silk-cloth.
 Peintres+imagiers=painters and illuminators.
 Paternostriers d'os=bone-bead makers.
 Patenostriers de corail=coral-bead makers.
 Paternostriers d'ambre=amber-bead-makers.
 Paternostriers+faiseurs de boucles=brooch and bead-makers.
 Pêcheurs=fishermen.
 Poisonniers d'eau douce=fresh-water-fish-merchants.
 Poisonniers de mer=salt-water-fish-merchants.
 Potiers de terres=potters.
 Potiers d'estain=pewterers.
 Poulailliers=poulterers.
 Regrattiers de pain de sel=retailers of salt and bread.
 Regrattiers de fruits=green-grocers.
 Selliers=saddlers.
 Serruriers=locksmiths.
 Tabletiers=tablet-makers.
 Tapiciers de tapiz sarrasinois=Oriental carpet-makers.
 Tapiciers de tapiz nostrés=carpet-makers.
 Taverniers=wine-shop-keepers.
 Tisserands de queuvrechiers=kerchief-makers.
 Trefilliers de fer=iron-wire-drawers.
 Trefilliers d'archal=brass-wire-drawers.
 Ymagiers=painters.

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CURRENT EVENTS.

GERMAN POLITICS.

The national feeling of the German is now one of the great forces with which the world must count, and it seems to be just as strong and just as fierce in Austrians like Hermann Bahr, whose prose dithyramb on German might I quoted in a previous *Quarterly*, and in Bavarian Catholics and Holstein farmer boys as it is in Prussian Major-Generals. Yet the German is young in national and political life, which may be said to have really commenced for him with the political tumults and agitations of 1848. But since that time at any rate no nation has had more experience of Parliaments and under the greatest variety of systems, Imperial, Prussian, Saxon, Bavarian, Württembergian and the rest. Every German knows the working of at least three or four different parliamentary and electoral systems. But nevertheless, the political life of the German as a whole receives its peculiar character almost altogether from the Parliamentary system of the Empire as embodied in the Reichstag, and from that of Prussia, together with that unique institution, the Bundesrat, a sort of Council of Princes which may rather be said to have control of the Parliamentary system of the Empire than to be within it.

To see how this Parliamentary system is worked and the kind of training it has given the German nation, let us first take a look at the Reichstag on one of its great historical days under Bismarck.

Bismarck in the Reichstag.

In a sitting of the Reichstag, on the 11th January, 1887, Prince Bismarck made a very candid and impressive speech on the policy and future of Germany. The occasion was the proposal brought forward by the Government to increase the effective peace strength of the army from 427,274 men to 468,409 men for the period of seven years, on which at that time all army estimates were based. Bismarck began by giving his opinion on their political relations with Russia. We must remember that in 1878 at the Berlin Congress he had supported

Austria-Hungary in acquiring the protectorate over Bosnia and Herzegovina and thereby effected a reconciliation with that Power and laid the basis for what eventually became a very firm alliance. But he was not inclined to go further in a Balkan policy against Russia. He reprimands very sharply a large section of the press for the attempt it was making to drag the Government into further anti-Russian operations in Bulgaria, "with ulterior designs reaching to Turkey" (*hinten weit in der Türkei*). He declared that was a dangerous policy which he would never countenance even if he was in danger of being considered in Austria and still more in Hungary as too friendly to Russia. But while he denied there was any good reason for hostility between Germany and Russia, he admitted frankly that the case was otherwise between Austria and Russia. Between these countries there was a real rivalry and competition of interests which made it difficult to maintain peace. (*Dort liegt die Sache anders. Es giebt wirklich rivalisierende und miteinander konkurrierende Interessen, etc.*). Bismarck's idea was to hold the balance as discreetly as he could between the rival interests of Russia and Austria and to refuse to be drawn into an aggressive policy in the Balkans. "The whole Eastern question," he said in his usual blunt but forcible and pregnant style, "is no war-question for us." In short, Bismarck, while he was anxious to conciliate Austrian-Germans, was not willing to support Magyars and Pan-Germans in an ambitious Balkan policy.

After having declared thus clearly and emphatically his policy with regard to the conflicting interests of Austria and Russia, he made the briefest reference to Germany's relations with Italy and England, which he declared were of so friendly a nature that they need not be taken at all into consideration in discussing the military question. Then Bismarck came to the pith of his speech, the relations of Germany and France. It was in these, he said, that the real necessity for the strengthening of the army lay. He was of opinion, he said, that "the historic process"—so he called it euphemistically—which had gone on for 300 years between France and them was not ended and that they must be prepared to see it continued from the French side. They were now in possession of the object of contention (Alsace-Lorraine). They had no reason to fight.

. . . But whenever the French came to believe that their

army was more numerous or better trained, or their artillery superior, or their powder better, these were all causes which under certain circumstances might make the French government decide for war. And there was a possibility that in such a war they might be beaten; he would not say he feared that, 'but nobody could deny the possibility of it.' It was only fearless civilian gentlemen, "the bold Parliamentary strategist," who thought there was no need of strengthening the army. The Chancellor then spoke solemnly on the consequences of defeat in war, and the responsibility members of Parliament would be under if by their vote they brought such a misfortune on the country. He had heard much, he said, about ministerial responsibility [*the absence of which in the German constitution was and still is a sore spot with Reformers*], but he heard little about the responsibility of members of Parliament for opinions and votes which deliberately weakened the military power of the country and might bring it to misfortune. Where was the tribunal to try such men? If they continued to act so, then he would move that such a tribunal be established.

Then he proceeded to describe the terrible consequences for Germany of defeat. The land would be ravaged as old people used to tell him it was ravaged and exhausted by Napoleon in 1807. A crushing indemnity would be imposed on them. They would have to give up Alsace-Lorraine and perhaps more of the Rhinelands; they would have to restore the Kingdom of Hanover [*pocketed by Prussia in 1866*]; they would have to return Schleswig certainly to Denmark, and they would probably have to give burdensome guarantees to France for better treatment of their Polish subjects. Then he told them with characteristic frankness that they would have to act towards France in a similar manner if they were again victors. The war of 1870, he told them, would be child's play compared with the next war in its results to France. Here are his own words:

We would take care that for thirty years France should be put out of condition for attack upon us, and that for at least a generation we should be completely secure from her. The war of 1870 would be child's play in comparison with that of—a year I know not when—in its results for France. (Cries of Bravo). Thus on both sides there would be the same endeavour; each would seek to bleed the other white.

Bismarck then concluded his discourse by telling the members that, whether they voted the increase or not, the governing powers of the empire (die verbündeten Regierungen) would carry it through by means of the Bundesrat. And here he explained how, in his opinion, the constitution of the Empire gave this power of independent action to the Bundesrat and even, in ultimate resort, to the Kaiser alone. Therefore, he said, any opposition they could offer would be of no practical effect. In opposing the Government's proposals they were compromising themselves needlessly in a matter in which they had no constitutional powers to give effect to their will. . . . The attempt to transform the Emperor's army, such as we have hitherto had in Germany, into a Parliament's army would not succeed. . . . It could not possibly be the desire of the German nation [*Bismarck from the beginning to the end of his career always laid great stress on this distinction between the real will of the people and the ideas and actions of their Parliamentary delegates*] that such an important matter as its security should depend on the will of constantly changing Parliamentary majorities.

That speech of Bismarck reveals the situation of the German people, politically and morally, better than any other document I know of, and the spirit which it breathes is that by which the German people has been ruled and guided ever since. It has even hardened under the inspiration of a policy of world domination and conquest which Bismarck, as we see, vigorously discountenanced. But what a situation it was even in his time! That speech of his, if you realize its significance as made to the assembled delegates of one of the most cultured and powerful nations of Europe, proclaims the struggle of two hundred years for democratic freedom and parliamentary government to have been futile and, in its principles, absurd. Morally it blots out a thousand years of endeavours to christianize civilization as if they had never been. It contains a few phrases which recognize faintly the existence of a more humanitarian standard, but it really takes us back to Cato's *Carthago delenda est*. For that was what Bismarck meant. He meant that France, that 40 millions of the most humane, intelligent, and sensitive people in the world should be broken in spirit and power beyond retrieval, broken and bowed to the earth, with all that that implies of ruthless slaughter and

ravage on the part of the victors. And the assembled delegates of the German people shouted with one voice "Bravo!" * And note that while Prince Bismarck spoke with authority as the official voice of the German people as to what they would do, what he said about the intentions and spirit of France was after all only a conjecture.

The Crisis in Prussia.

There are many now who are surprised at the change which has transformed the countrymen of Kant, Herder, Fichte, and Goethe into the countrymen of Bernhardi, von Tirpitz, and von der Goltz. They forget perhaps that even at the beginning of the last century they were the countrymen of Clausewitz, Blücher and Jahn. There is nothing so unnatural in that development or in that other which replaced Humboldts and Bunsens by Delbrücks and Dernburgs, and the Liberal orators and professors of the Frankfurt Parliament by delegates who follow half constrained or wholly sympathetic the State policy of military Junkerdom. The intellectual and the political transformation have gone hand in hand. The Napoleonic conquests in Germany and the treatment of Prussia after Jena had much to do with it. And immature forms of Liberalism in the earlier period, rash speaking Radicals and Republicans with no eyes for reality—the German Byesses and Spenders of the period—contributed no less than German Particularism and the numerous German dynasties to make a democratic form of union impossible for Germany. But the great failure was in Prussia where the popular rising in 1848, though it brought forth a new constitution, was followed by a reaction which made that constitution ineffective as a means of progress, at least of democratic progress. But the Parliamentary struggle was continued by a number of able men amongst the Liberals and Progressives who in spite of the very restricted franchise were able to gather a solid majority behind them. The crisis came in 1862 over the question of a great reorganization and increase of the Prussian army which King William and von Roon had decided was necessary. They very nearly failed. The King talked of resigning. But Bis-

*See Fürst Bismarck's Reden. Erster Band, p. 246.

marck took the reins, defied Parliamentary majorities and Budget Commissions, got the Upper House to throw out the Budget entirely, thus leaving the State expenditure unprovided for, and then carried out his projects by virtue of what he called the king's prerogative to act in emergencies (notstand). This state of affairs lasted four years.

It was not exactly what is called a coup d'état. The Prussian government does not make coups d'état; it only makes arbitrary extensions and applications of a constitution which has been carefully framed to admit of such. You can read Bismarck's own defence of it in his "Reminiscences." But it was a complete defiance of Parliamentary majorities, of what we call representative government.

One does not know how the conflict might have ended, but just at this time the old question of Schleswig-Holstein and its relation to Denmark came to a head, and Bismarck's bold and clever handling of the situation began to convince even Prussian Liberals that they had got a master of diplomacy and statecraft in this awful Junker, this Prussian Strafford and man of hopelessly antiquated ideas. Bismarck first persuaded Austria into a joint occupation of the Danish provinces, then manoeuvred her into a bad position there, and then into a worse. The inevitable result was the war which Bismarck had long considered necessary for Prussia and for which von Roon and Moltke had made thorough preparation. Austria was defeated and Bismarck came back to his Parliamentary opponents with the whole of Schleswig-Holstein in his pocket, and also the kingdom of Hanover, Kur-Hesse and Hanau which he had snapped up at the beginning of the war. Prussia had become one of 'the great Powers.' He asked for a vote of indemnity and got it. The king said to him, was that not an admission they had both done wrong. "No," he said, "it is the Parliamentarians who are admitting they have been wrong." And that was the real aspect of the matter. Representative government, democratic freedom or whatever else you may call government by the majority of the people's chosen representatives, sank out of sight in Prussia as the result of that conflict. No efforts of either the Liberal or the Social Democratic party since have been able to procure any modification of 'the three class franchise' by which 200,000 rich men of 'the

first class' have the same voting power as six millions of poor men.

Failure of Constitutional Reform in the Reichstag.

As for the constitution of the Empire, Bismarck's speech in 1887 shows us clearly enough the principles on which it was founded and how it was worked in his time. There is no essential difference in it yet, although appearances are better kept up, and the people have been pleased at times with a great show of fighting over Estimates for the Army and Navy, with crises in the Reichstag, negotiations with the different political groups, concessions to the Poles or to the Centre. But though the Government occasionally condescends to accept small defeats, the real power in reserve remains where it was, and the Kaiser has never been diverted in the slightest by the hostile criticism or votes of a majority in the Reichstag from his policy of accumulating forces sufficient to dominate Europe. In 1906 a coalition of the Catholic Centre and the Social Democrats made an effort to bring the Kaiser's expansion policy and his command of the army under some control by reducing the estimates for the forces in South-West Africa. The Chancellor, von Bülow, simply dissolved the House and passed the word — it is his own expression — to vote against the Social Democrats at the second ballots. The Social Democrats lost nearly half their seats, although the number of their votes increased by half a million. Liberals united with Conservatives to defeat them. The event seems to mark the triumph of the Kaiser's national policy over old questions of constitutional freedom in the general sentiment of the nation. Since that time, although the Social Democrat vote was largely increased at the election of 1912, the Government has easily found parliamentary majorities to pass its steadily increasing Armament Bills. Questions of constitutional reform have fallen into a half dormant condition.

The New National Policy.

Of course there had been a great change in the position and policy of Germany since Bismarck's time. By the twentieth century Germany's growth in population, commerce, wealth and military power had long placed her beyond any

real fear of aggression. Prussia was no longer the small state surrounded by powerful enemies against whom it was necessary to provide exceptional measures of protection. It was another programme altogether now which heralded new and increasing estimates for the Army and Navy. When the young Kaiser took the helm from Bismarck in 1890, a magnificent programme of expansion commenced, embracing colonial acquisitions, sea-power and the extension of German supremacy in one form or another through the Balkans and Turkey to the East, and who knows what more! "Without the consent of Germany's ruler nothing must happen in any part of the world." So the Kaiser spoke fifteen years ago, and when I read German political writers on the relations of Germany to Holland or on the strengthening of the German population in the Baltic provinces of Russia, I find it hard to say where their ambitions stop short, but I see that not a few countries have reason to feel that the "friendly penetration" of Germans with their new ideal of *Deutschtum* is practically forming an alien power in the midst of them.*

Since Bismarck's time also Germany has made the decisive choice between Russia and Austria which the Kaiser's new policy required. The necessary combinations had become easier. Austria was no longer the half-hostile Power of the Seventies. The German-Austrian had been swept into the swelling current of *Deutschtum* and the Magyar aristocrat had realized how closely his class interests were bound up with those of the Prussian Junker in keeping down crowds of Slavs, Poles, Croats and other unprivileged races, not to speak of German Social Democrats. The Catholic Centre has been conciliated; all good Germans now speak of Bismarck's famous *Kulturkampf* as a big blunder, and there are signs that the old idea of the "larger union" with Austria, a scheme which Austria herself used to favour in the old days, may be revived in some safe form. For the Prussian invention of a Parliamentary system which puts all real power into the hands of the Kaiser and a Council of Princes, makes a wide extension

*See Prof. Paul Samassa, *Deutsche und Niederländer*, and Alfred Geiser, *Das Deutschtum in Russland.* (*Deutsches Reich und Volk*, Munich, 1910).

of the Empire easily possible. Under an appearance of Parliamentary government it can hold as many subject provinces as it likes under a virtually despotic sway. And the more it is extended, the more will the ordinary German feel the need of preserving that almost uncontrolled sway of the central government. For the ideas which Naumann and other writers of the Progressive party cherish of a democratically governed Empire embracing Poles, Slavs, Czechs, etc., can hardly be considered practical.

Liberals blame the limited ideas and narrow class politics of the Social Democrats for the failure of constitutional reforms. A *Fortschritt* writer says: "Only by incessant work for Liberalism, only by the election of sound Liberals . . . who have an intelligent grasp of the national tasks of the German Empire, is it possible to wrest the helm from the hands of the reactionaries and introduce the practical policy of progress which the Social Democrats perhaps desire but are unable to accomplish by their dogmatic limitations and isolating class politics (*klassenmässigen Isolierung*)."*

Prince von Bülow's View of the Situation.

The view which a rather liberal-minded Prussian statesman (I mean as distinguished from a typical Junker willing to rule by mere force) takes of the situation may be seen in the chapters on Social Democracy in Prince von Bülow's recent book, *Imperial Germany*. It virtually amounts to this, that the Prussian state with its monarchical and military character is the backbone of Germany's political life and at the same time the antithesis of the Social Democratic ideal. If the Government were to make concessions to the Social Democrats, as it did when the king ordered that "sad retreat of the troops" before the Berlin populace in 1848, the State, Prince von Bülow tells us, would go to pieces in the general bewilderment of Prussian officials and soldiers, whose loyalty is rooted in their respect for Prussian discipline and order and in their confidence in the strength of the Government. And it is hardly possible to make concessions to them in the Parliament of the Empire when you cannot do so in Prussia, though some *local*

*Erich Eyck. *Die Sozialdemokratie*. Berlin, 1912.

Governments, like that of Bavaria, may be able to do so. Further, the Social Democratic party is revolutionary in character, but is only dangerous, in the opinion of the Prince, so far as members of the educated classes join it. "Wherever the proletariat has fought alone as in the June battle in Paris and during the Commune, it has always been defeated." If Social Democracy tried to attain its ends by force or threats, the Government would have no difficulty in suppressing it by force. But a Government can no longer use violence to repress mere opinions however foolish or dangerous to the State. [*—this is a warning to Junker militarism.*] It is "the task of Ministers," therefore, to separate the Social Democratic party from "the intelligent middle class," and they must, therefore, whatever their "inner convictions are," rule in such a way and by such management of the various political groups as not "to repel Liberalism." If left to its own resources and unaided by the middle classes, Social Democracy "cannot attain a numerical majority in the nation." Lastly, Socialism is a dream, the poor man's dream, and naturally the workman, struggling hard for a living, is apt to succumb to "the seductive sophistries" of Socialistic teachings. We must show the working class that Socialist promises are illusory and that the actual provisions made for the poor by the State and society as they exist are worth more than promises which can never be fulfilled. We must fight steadily for the souls of our workmen, must seek to win back the Social Democratic workmen to the state and the monarchy. Our fight is not directed against the workmen; its aim is to rescue them from the snares of the Social Democrats, and to accustom them to the idea of the State. We must especially prevent the middle class intellectuals from drifting into touch with the Social Democratic movement. The true means for these ends is to pursue a courageous wide-minded national policy which brings the best powers of the nation into action and maintains in it satisfaction with the present conditions of life. And to do this ministers must have resolution and energy and not be afraid of a bold policy.

Such is the view which ex-Chancellor von Bülow has of the situation in Germany and he represents the more moderate and liberal-minded statesmanship of Prussia. He is doubtless right in regard to the illusions or golden promises of Socialistic

Labour leaders. Socialism is no more likely to keep its golden promises than many other 'isms', equally absolute and one-sided, have done. Otherwise Prince von Bülow's view, which I have given almost entirely in his own phrases, practically amounts to this, that the Prussian system must be maintained at all costs as the backbone of German political life, and that every effort should be made to occupy the mind of the nation with a "vigorous national policy" rather than with mere constitutional questions. Also, that there is no need to fear the working masses as a force, meaning, I suppose, that modern artillery makes mob revolutions hopeless.

I do not pretend to argue that the Prussian electoral system is irrational, or even a moral blemish; it might be logically maintained that it is more rational than our own which gives the same voting power to an illiterate mechanic or a drunken street loafer as it gives to the President of a National Bank or a University. We have so far succeeded in dodging the dangers of such a system rather than in overcoming them scientifically. And it has been at the cost of making our political leadership rather uncandid and neglectful of realities, as I will show in the article that follows this. The German system recognizes the realities of life as ours does not, and it is conceivable that its principle of a highly restricted franchise combined with conditions of publicity and free speech might have been worked with better results for humanity than the spectacle we are now beholding in Europe. German Liberals blame the unpractical talk and schemes of the Social Democrats for driving the Kaiser to rely more than he might have done on Junkerdom and "Prussianism." But that is hardly sufficient to account for the terribly significant phenomena of Germanic development. The ferocious speeches of the Kaiser and his Generals, the excessive pre-occupation with war and the immense preparations for it, the world-wide system of espionage and conspiracy which has made the "friendly penetration" of other countries by Germans equivalent to implanting camps of aliens and enemies amongst them, the new doctrines of the *absolute* right of conquest in itself (which had begun to be regarded as an antiquated tradition of feudalism), and of the *absolute* morality of war proclaimed not only by Bernhardis and Disfurths but by learned professors and jurists, the savage hymns of hate, the official proclamations and

practice of extreme and barbarous principles of reprisal and the exceptionally ruthless methods and usages in warfare, all these show clearly that the modern German is systematizing into a universal law of life and conduct all the occasional violences, excesses or lapses into doubtful procedure which he finds in the history of other successful nations as well as in his own. There is no nation that has not things in its history which it would like to blot out, violences more or less unjustifiable, cruelties that fear or passion drove it to commit, but it has been left for Germany, I could almost say, to erect such excesses into a system, into a fundamental principle of the struggle for existence. Indeed it is the nature of the German to systematize things with a kind of violence and a fine disregard for what the system may lead to. The pious young Schleiermacher does it in theology and reduces religion to a Spinozistic contemplation of the universe; Treitschke does it in German history and writes as if French 'rights of man' and British development of Parliamentary government meant nothing at all for the progress of civilization; even in a subject of purely historic and aesthetic interest like the sculpture of ancient Rome, Wickhoff theorizes away with profound indifference to the fact that after all there must be a standard of 'what is fitting' somewhere in art.

I am inclined to think also that the triumph of Prussianism is closely connected with German racial feeling and the strong measures the Germans have thought it necessary to take in order to preserve their racial purity and control against the Polish, Jewish and other foreign elements in the nation. No reader of German novelists from Spielhagen to Fontane can fail to see how deep the consciousness of that conflict is in them. At a time when Anglo-Saxonism both in the United States and Great Britain is developing in some democratic confusion under the influence of heterogeneous racial elements, the Germans are making the most determined efforts to maintain and strengthen the Germanic character of civilization. amongst the mixed populations of the Eastern provinces. In this conflict also Bismarck was their great man, and his speeches, particularly those of January, 1886, in the Prussian Landtag, sum up the situation with characteristic frankness.

The History of the German.

We must also take into account as explaining a tendency to ruthlessness and brutality in the German, that he has a long and terrible history behind him. Already in the *Nibelungenlied* the atmosphere of the German is sombre and sinister, imposing veracity and doughtiness, I don't doubt it, but ruthless, far more so than in the *Beowulf* of his cousins, the Dane and the Anglo-Saxon.

In Norse history of the 13th and 14th centuries the Germans of Lübeck and the Hansa towns appear as an aggressive people, colonies of them occupying Bergen and other Norse sea-ports and behaving with great insolence to the natives. The story of German commerce and expansion in the Eastern Baltic also as far as Riga and Revel is a pretty rude story in these days, the operations of the Sword-Brethren and the great Teutonic order being mostly a fine mixture of crusading and ruthless filibustering and conquest, varied by uprisings and St. George's Nights on the part of oppressed Letts and other races; a most tumultuous part of the world where Danes, Poles, Swedes, Germans and Russians have all striven for mastery. Czar Peter ended it for the time in 1710 by making the whole district Russian, but there has remained a thin layer of Germans, mostly upper class, landowning nobility and professional men, who have contributed much to the development of these provinces of Russia. There are about 160,000 of them amongst two millions of Slavic farmers and peasants, but for long they were in control of the educational system and energetically opposed attempts at "Russification." The new revival of *Deutschtum* may create a serious problem for Russia in that quarter.

In Germany itself life has been stern and often brutal for the German. Of the doings of von Quitzows, von Bredows, von Jagows and other Junker families in the old Mark Brandenburg, in earlier times, it is useless to speak, for the nobility and gentry of that time seem to have been pretty much the same in all countries, only the comparative weakness of the many small reigning houses in Germany made the license there greater. It is true that commerce and art too could thrive at times in the midst of all that. The civilizing and artistic influences of the guilds in the flourishing Free Towns, especially

in the South, furnish pleasant and picturesque memories of mediaeval Germany. One likes the solidity and seriousness which one sees in the faces of German merchants and scholars as Holbeins and Kranachs painted them, but there is plenty of evidence to show that there was an unusual amount of coarseness in the German even for that age. Luther was certainly a hero and even, in his hours of asceticism and inward struggle, a saint; but surely there never was such a saint or founder of a religion for brawling, cursing, jovial anecdotes, and even for frank assertion of the blood, as a certain letter of the pious and much tried Melancthon clearly testifies. Then after the Reformation came the terrible history of a Thirty Years War, a Seven Years War, and other wars, invasions and devastations without number, both foreign and native; Tillys and Wallensteins, Electors, Grand-Dukes, Prince-Bishops and Kaisers have vied with each other in ravaging and wasting lands inhabited by men of their own blood and speech down to a very late date in European history. All that has had its effect on the Germans and on their view of life. For a time, especially in the early days of the French Revolution, this same terrible history of theirs helped to make them ardent disciples of the French Aufklärung and bred apostles of humanitarianism like Lessing and Herder. But Napoleon's misuse of his conquests gave Prussianism—*das spezifische Preussentum* as they call it today—new vitality and wider significance, as you can see in the later Herder and Fichte. The success of Bismarck's policy and the conquests of 1864, 1866, and 1870 completed the making of the German people and gave the world a strong but ruthless nation which will need watching, now that it is in the saddle, to use Bismarck's expression—at at rate as long as it is ruled by Prussian Junkers. The German has been bred in a hard school of life and will not be swayed by sentimental humanities where he is a master. Not only the Kaiser and Bismarck, but all the great Chancellors of the German Empire have given the world, in official speech, the clearest warnings in this respect. "The German nation," said von Bülow in 1907, "sits firmly in the saddle and it will ride down everything that places itself in the way of its well-being and its greatness," and four years afterwards von Bethmann-Hollweg said: "The dominant chord of the passionate feeling which prevails in wide circles is the will of Ger-

many to assert herself in the world with all her strength and capacity." It would be folly to refuse to understand the tone of such utterances.

Later German Thought.

With the success of Bismarck's policy the intellectual tide began to turn in Germany. A new view of life began to find a wide expression in German literature and thought, a view of life which may be described as a revolt against sentimental morality and humanitarianism as unveracious and a deviation from the laws of universal nature. All transcendental valuations of life, moral or religious, are rejected. For various reasons writers like Ernst Haeckel have had a more widespread and profounder influence on German life than writers like Herbert Spencer have had in England. And although Haeckel's monistic philosophy has some points of contact with the humanitarian principles in Christianity, yet his constant and emphatic assertion that the history of humanity and its civilization is, like all the rest of the history of the universe, a mechanical struggle for existence under "the eternal iron laws of nature", gives a hard and relentless character (as he himself admits), to the doctrine of the survival of the fittest. The result is that his fundamental moral principle, "the Balance of Egoism and Altruism," is ambiguous in application, and while it asks a certain amount of judicious altruism from the individual allows the life of the nation or State a purely egoistic basis in *Realpolitik*. Haeckel even speculates with true German pedantry on the possibility of establishing in mathematical terms with what number of associated persons (*bei welcher Zahl vereinigter Menschen*) this change of moral principle should begin. (See *Die Welträtsel*, chaps. 14 and 19). There is no doubt a truth here which used to be recognized in the old juristic distinction between the state of nature and the state of civil society. Spinoza states it in its boldest and most uncompromising form; but it requires a more cautious formulation than Haeckel's profoundly materialistic identification of mass and morality gives it. English thought is here in its usual ambiguous, not to say helpless, condition. The English Liberalizing professor tends to lose the idea of the State life altogether in an abstract Humanitarianism which the world has

not as yet been able to embody in any organism in which it could be realized, while Conservatism, with more instinct for realities, perhaps, fails to explain itself philosophically.

The influence of Christianity on the history of civilization is severely criticized not only by scientific philosophers like Haeckel, who accept the principle of the struggle for existence, but by a socialistic humanitarian like Dühring, who despises not only Darwinism ("Darwinerei"), but Junkerdom, Hohenzollernism and all the other Prussian ideals of the day as well as the unscientific "mish-mash" of philanthropic sentiment, class prejudice, professional climbing and party politics which in his view makes up the ordinary middle class politician. In Dühring's view Christianity along with Buddhism has done most to establish views hostile to life (*lebensfeindliche Ansichten*). The one has lamed Asia and the other has hindered the higher development (*Aufschwung*) of Europe. Christ is nothing but a late Hebrew intellectual (*der geistige Späthebräer*), and his teaching mostly consists of the usual Hebrew oriental exaggerations of feeling and imagination. His saying "Love your enemies" is a characteristic expression of the Hebrew love of paradox and exaggeration. From this source there has crept into our civilization a tendency to develop a type of hypocrisy. We need a new morality with scientific valuation of life, new politics instead of the "canaille-politics" of to-day; also a new art and a new poetry which shall no longer offend our sense of reality and indulge in an immoral beautifying of the actual.*

"There is a conspiracy of silence against Dühring," a German once said to me, for not only is he a relentless critic of the new Kaiserism (*Cäsarismus*) and its national ideals of conquest, but though he was himself a professor at Berlin for some years, he is rather given to disparaging the profession as consisting chiefly of learned hodmen (*Handwerksgelehrter*) who keep on repeating the phrases of this or that school when they have become empty and unreal. The first edition of Dühring's *Der Werth des Lebens* was published in 1865, and it was just about that time that the great change was taking

*See Dühring's *Der Werth des Lebens*, but especially *Die Judenfrage* and *Soziale Rettung*.

place also in the German view of politics and political ideals as a consequence mainly of the success of Bismarck's methods. Not only French republicanism, but the parliamentary system of England, whose principles and precedents had hitherto furnished the German Liberals with most of their arguments and appeals, began to be spoken of as unsuitable for Germans. Government by Parliamentary majorities, as Bismarck from the first used to argue, was a system adapted to Englishmen which he admitted had worked well in England but not particularly well anywhere else.† A new school of Prussian historians arose who opposed 'the result of historic fact,' (*das historisch Gewordene*) to abstract theories of popular rights, and criticized sharply the Manchester Liberalism of Britain with its gospel of buying and selling superficially decorated with humanitarian and pacifist principles.

Treitschke, who began to lecture in 1865, is the most widely known of this school. He regards the Manchester doctrine as mere individualism and sensualism and therefore thoroughly unGerman. No social harmony could ever arise from it, no sound organization of the State could be based on it and its worship of "what can be counted, measured and weighed." All that was a form of Epicureanism, of *sittlicher Ruheseligkeit*, which I would translate by Carlyle's phrase, "life made soft for everybody." He owes a good deal to Carlyle in certain lines of thought as Dähring does both in thought and phrase. He also expresses a high moral disdain of that narrow-minded commercialism which thinks the Army and the Bureaucracy a burden on the nation. But Treitschke was by birth and temperament a military Junker whom an accidental deafness had debarred from his natural career. Far more significant to me is the change which took place in historians like von Sybel, who had been amongst the National Liberals who had fought Bismarck in the days of the great constitutional conflict and denounced him as a mad reactionary and obscurantist. When von Sybel came

†On one occasion he qualified his admission by adding: "Wait, gentlemen, till we have seen the full effects of Gladstone's extension of the electorate in England." He himself favoured a universal franchise (as a counteraction to Court intrigues and a safety valve), *but under a Prussian constitution*, where it had little power but to criticize.

to write the history of that conflict some years afterwards he characterized the ardour of the Liberals and Reformers as *ein unklarer enthusiasmus*, a muddle-headed enthusiasm, and summed up in favor of Bismarck's defiance of Parliamentary rule as not really unconstitutional under the Prussian system. He admits that under that system "an ill-intentioned Government can make the control of the Lower House an empty show." But he adds that it is just as true that under the British system "the Lower House by means of its financial control can subject both the Crown and the Upper House to its commands," a proposition which he seems to think balances matters satisfactorily. He also defends Bismarck's unscrupulous manipulation of the Ems telegram which forced Napoleon III into war over the question of the Hohenzollern candidature for the throne of Spain. We can all see now, by the bye, what the planting of Hohenzollern and allied German princes on foreign thrones means.

Von Sybel's recantation is the mark of a great change in a whole class of intellectual Germans. The theory of democratic or popular government, of the sovereign power as residing in the people, fell into discredit. The names of Reformers and Liberal orators became dishonoured names. The popular rising in 1848 in Berlin when students, workmen and professional men fought together at the barricades to secure a free constitution for Prussia, became an ignominious page in German history, and its events were referred to as those of "the year of madness." All the memories and traditions of the struggle for constitutional reform and that more democratic ideal of German unity which had been cherished by the men of the Pauluskirche and the Frankfurt Parliament and the old Liberal opponents of Bismarck suffered that kind of eclipse which a defeated cause is sure to suffer when the opposite cause has securely established itself as the way of providence. The glorification of Prussia and the Hohenzollern dynasty took their place. It was the intellectual victory of Bismarck's principles and ideals. This man with his realities as Sybel says, with his *Realpolitik*, had found a way to realize Germany's unity when Liberal doctrinaires and theorists had shown their incompetency. "History speaks for me," he said simply and proudly. And the ideals of Prussian discipline and order and of Prussian militarism, which had once been hated

by other Germans, became the tradition of the whole nation. And they combined admirably with the new scientific view of life as the prize of the strongest to lead Germany into the path of world conquest and dominion.

The best one could say for the modern German attitude is that it may partly be regarded as a protest against what is unreal and from a purely biological point of view unsound in the sentimental Humanitarianism of to-day with its neglect of national discipline, its virtual condonation of civil disorders, and weak, uncandid handling of all social problems. The Germans have come to regard such sentimentalism as weakening modern civilization and leading inevitably to its decay. And they regard themselves as having a mission to save it, to redeem it from the shams and hypocrisies which are corrupting it. From this point of view while Haeckel and Dühring are in their different ways more scientific expressions of the German view of life, Nietzsche is its most poetic and in one sense most philosophic expression. He really sets the crown on the whole of this Germanic development, political as well as intellectual, which refuses to recognize the right of a sentimental humanitarianism to obstruct man's exploitation of reality and rejects Christian ethics as a treacherous design on the birthright of the strong. Even Harnack's formal separation of religion from the State is only an apologetic application of the same point of view. It is a piece of pure sophistry when Prof. Oncken of Heidelberg denies, or would appear to the American public to be denying, that Nietzsche has his proper and prominent place in this movement of the Germanic spirit, simply because he happened to have, like Treitschke and many Pan-Germans, Slavic blood in his veins and in addition to dislike certain elements in German culture and in the German character. But all the same Nietzsche realized clearly enough that the only nation ever likely to seek inspiration from his programme or to attempt to carry it out was the German.

Reality or the sense of the actual (*Wirklichkeitssinn*) is the watchword of the modern German, and perhaps he makes a very characteristic mistake in supposing we have a standard of reality for human life which is now so clear and fixed that we may learn to apply it with scientific and almost mechanical precision. It is not so. Civilization is a middle term between an ideal of progress and the material conditions of nature, and

man moves with a certain vacillation which at times seems almost hypocritical between these two. But the Germans will probably find that it is just as dangerous to reject the idealistic and sentimental humanities in their scheme of life as it is to shut one's eyes to the stern material conditions, as a large section of the English-speaking democracies seems inclined to do.

BRITISH POLITICS.

The British Empire has had a long and slow growth and that growth has not as a rule been owing to any preconceived scheme of conquest or aggrandizement on the part of the Government. The old American colonies of Britain, for example, originated in the emigration of Englishmen who sought religious and political freedom in the wilds, and although it involved the fall of Dutch rule in the settlements around New York and the disappearance of the North American savage, I have never heard anyone question that the rise of the United States as a final result has been a benefit to civilization and humanity. And it was in defence of these same American colonists and their interests against the grand schemes of expansion cherished by French Canadian governors that Britain was led to the acquisition of Eastern Canada. The conquest of India commenced in a struggle to maintain the commercial interests of the East India trading company there against French rivals. Its first extensions were owing far more to the ardour and energy of local governors than to any schemes of conquest at home. After Bengal and Madras, all the rest followed step by step, almost inevitably, by way of defending and making secure what was already possessed. It is true there are some unpleasant pages in the history of the conquest of India, but the worst of them were temporary and quickly passing severities such as took place at the suppression of the Sepoy mutiny. If racial hegemony or overlordship is to exist in the world at all—and every great Power to-day, even the United States, furnishes an example of it—there is little to be said against the mild character of British rule in India and much to be said of the peace and civil order which it maintains amongst that vast and heterogeneous assemblage of races and creeds. The history of civilization is that of a slow strug-

gle out of conditions of brutal force and it is quite possible by asking too much to lose some of the good we possess.

South Africa, in its original form of the Dutch colony at the Cape of Good Hope, fell to Britain as a result of the struggle with the French Revolution. The British government had no thought of putting a foot at the Cape when the French seizure of Holland made it necessary to secure that half-way port of call to India against French cruisers and privateers. From any other point of view the Cape was then considered a possession of little worth, even by the Dutch themselves. After Cape Colony passed into British hands British emigration to its remote eastern parts, near the Kaffir settlements, was welcome to the Boers of Brintjes Hoogte themselves and along with emigration to Natal, where the Zulus were, eventually formed, in a peaceful enough way, proper British colonies in South Africa, that of Natal being purely British. It was in defence of these long established British settlements as well as of later acquired interests in Rhodesia, Kimberley and elsewhere, that Britain was forced to go to war with the Transvaal State, which though small was very military in its way and had more than merely defensive schemes against the British power and the British settlements. And the Transvaal war first made possible the present peaceful, united and free South African Federation. Doubtful commercial ambitions no doubt had their part amongst the disputes which led to the Transvaal war, as they have their part in most things nowadays, but the main cause lay in an absolutely necessary defence of a part of the British Empire and a British population against aggressive designs. Nothing can be more absurd than to compare Britain's war with the Boers with Germany's invasion of Belgium which the German Chancellor himself admitted had no other excuse than military strategy.

Australia, New Zealand, Western Canada, have grown up by peaceful settlement on neglected wilds and here and there by the displacement of savage tribes.

Egypt, Gibraltar, and some small dependencies in which British control has replaced Dutch or Danish are no doubt more deliberate cases of military conquest and the securing of strategic positions for war and commerce. But in general it may be said not only that a large part of the Empire has its

origin in peaceful settlement, but that even the rest of it has not been acquired by any deliberate plan or preconceived design of conquest but has come as the result of struggles and conflicts which the British people would have been glad to avoid if they could. Treitschke even sneers at the growth of the British Empire as due to accident and good fortune. Like a true German following his Idea recklessly, he chooses to forget that to keep what she has got has involved Britain in hard fighting by sea and land in every generation.

Still it is in this way that it has come about that though the British Empire is one of the greatest the world has known and has been maintained at times only by great struggles, yet the British people both at home and in the colonies are on the whole a peace-loving people and have on the whole had peace-loving governors. Even Pitt, whatever his Continental reputation is, liked war as little as Walpole and did his best to avoid it as long as it could be avoided with safety and honour. And in the present conflict no one who has any political sense can doubt that a Premier like Mr. Asquith would have given much to be able to avoid war. In short, the British people have never been indoctrinated with the idea of war and conquest as an ideal of national life in the same way as German Kings and Kaisers, German Chancellors and War Ministers, German historians and professors have succeeded in indoctrinating the German people with the ideal of military training and the virtues of war and conquest. In this respect the maintenance of a strong navy has a different significance from a military system which turns a nation into an armed camp. In itself a navy is rather a defensive weapon than an effective means of aggression or domination; and its service affects only a small sea-faring part of the population. Its psychological effect on a people cannot be compared with that of a great military supremacy which has always tempted nations with visions of world domination. Throughout the British Empire, except perhaps in Australia, the danger is on the other side, in a tendency to shut the eyes to the fact that war is, under the present social and commercial conditions of the world, always a possible contingency. As long as there are any States in the world willing and ready to make war or to begin aggressive action, no single nation however peacefully disposed can be sure of avoiding war honourably and safely.

That is an evident fact yet it is one which many of our Pacificists do not seem to see.

Pacifism in Britain.

There has always been a strong 'Peace Party' in Britain if you include in that term not only those who object to war on any account and think it can always be avoided, but also those who for various reasons have such an aversion to war that they can with difficulty bring themselves to see the necessity of it or of preparing for it. Financiers and business men, though they often make good hauls out of a 'little war,' are generally seriously disturbed by the prospect of a great or doubtful one. Radical M.P.'s and editors, who are not normally of very pacific temper or addicted to the soft answer that turns away wrath, nevertheless show as a rule great irritation at any forecasts of war or at proposals to strengthen the army. War talk has a tendency to interfere with their own campaigning and they are inclined, therefore, to look on it with suspicion as one of the weapons of the enemy—I mean of course of the opposite political party. When Lord Roberts sounded his note of warning to the British people a few years ago and urged a scheme of national service, *The Nation* declared at once that "there was no German peril" and denounced the scheme as "a plot for the destruction of Liberalism and for abolition of civil freedom." (Dec. 7, 1912.) The *Westminster Gazette*, the *Manchester Guardian*, the *Daily News* and other influential organs of opinion kept on to the last assuring the nation that the danger from German designs was a mere bogey, set up by Tories and Jingoists. Mr. Spender in a pamphlet on the relations of England and Germany declared there was "no question looming ahead which need bring the German and British peoples into collision." Sir W. P. Byles, Radical member for Salford, declared that he believed England has "no enemies" and that a standing army was not necessary for the country. (March 24, 1913.) "Whom did we want to kill?" Sir W. asked the House with ire; "whose houses did we want to burn?" Mr. Keir Hardie thought "a bold, firm statement that next year our Dreadnought programme would be a blank would produce an instantaneous effect on the German Empire." (March 18, 1912.) One does not know what Mr. Keir Hardie's idea of the German Empire was, but at least the Kaiser and Chancellor von

Bethmann-Hollweg had already proclaimed clearly and officially that it would have no effect on them. Just a year before Mr. Keir Hardie's statement, Bethmann-Hollweg in the Reichstag had declined to have anything to do with schemes of disarmament as involving in his opinion an impossible adjustment of forces by consent, and he had pointedly remarked: "When a people will not or cannot continue to spend enough on its armaments to be able to make its way in the world, then it falls back into the second rank and sinks down to the role of a 'super' on the world's stage. There will always be another and a stronger there who is ready to take the place in the world which it has vacated." But probably Mr. Hardie's idea of Germany was that it was a country very much like England where "bold and firm" statements of opinion from Radical members and newspapers have an instantaneous effect on the army and navy estimates.

There seem indeed to have been a good many illusions amongst Radical members and editors about Germany. One was as to the power of the German Social Democrats to prevent war. *The Nation* spoke with the utmost confidence of Social Democracy in this respect, "with its twenty per cent. of soldiers in the German army," and the *Daily News* declared the day before the war broke out that "Socialism in Germany only awaits such a moment as this to overthrow the despotism that holds it under its iron heel." The most curious of these illusions, perhaps, was that of Mr. A. H. Scott, Radical member for Ashton-under-Lyne, who was evidently under the impression that if a German army did invade England (which he didn't seem to mind very much) it would at least respect honest toil and the sanctity of Labour's homes. Mr. Scott said: "He was one of a minority which opposed extravagant expenditure on the Navy, thinking we had enough instruments of destruction. Even if the Germans did come, they would not be such fools as to interfere with the industrial and wealth producing classes. They would only interfere with the land-owning, and if it were the latter's land that was protected then let them pay for the protection."

The contribution of Mr. W. P. Lane ("Norman Angell") combined a characteristically severe form of logic with a characteristic innocence of experience: "If Germany could conquer us, would any ordinary German subject be the better for

it? . . . The 'German' and the 'Englishman' are pure abstractions and do not in reality exist."

But a much more responsible and better informed class of politician than Sir W. Byles or Mr. Keir Hardie habitually preached a confident optimism which to say the least was dangerous in face of the utterances of official Germany, of a widespread and influential war literature, and of the general trend of German thought. That solid type of Liberal, the member of the Cobden Club, the inheritor of the great tradition of the Manchester School, could evidently not bring himself to think that the world about him had changed so much since the days when British ideals of popular and parliamentary rule, British ideas of trade and commerce as a practical gospel of peace were the admiration and model of all Europe. He probably did not realize the significance of the assault that had been made upon them by later German jurists, historians and philosophers. He is naturally a humane and peace-loving type, though German Treitschkes and philosophic followers of the Idea only see in him a hypocrite because he does every now and then rouse himself to defend his till as any other peaceful burgher might. But he is slow to see the necessity and would fain shut his eyes. "Time will show," writes Lord Loreburn in 1913, in a work published by the Cobden Club, "that the Germans have no aggressive designs against us, nor we against them; and then foolish people will cease to talk of a future war between us which will never take place." Not a few eminent men of the old Gladstonian bodyguard did their best to obscure the plain meaning of the last five years, or even the last ten years of German history as regards England. They could not believe the world or Britain was facing such a danger. Doubtless they knew or suspected that Germany had a design to crush France and that the Germanic Powers had combined with the Magyar to walk over Russian opposition in the Balkans. They must have known that meant war. Did they realize what Britain would be facing when Germany had crushed France in a three or four months war by sea as well as by land, for she would have been superior on both, and thrown Russia back as far as she wanted to throw her back? Britain, that for ten years past, remember, had been obliged to stand on her defence against Teutonic aggressiveness, that had supported France at Agadir and had

a certain mutual understanding with her for a defensive policy, Britain would have been facing an excited and victory-drunken army of four or six millions of Germans with nothing more than a little band of 160,000 trained soldiers—and perhaps a hastily assembled million of untrained citizens for whom there were neither officers nor munitions of war. And perhaps the French fleet, or most of it, would have been under German command. As late as August 3, Lord Courtney, Mr. Trevelyan, Mr. Hobhouse, Mr. Ramsay Macdonald and others signed a protest against Britain taking part in the war on the ground that “no fact had been disclosed which would make it otherwise than disastrous” to the interests of Britain to do so. I suppose they thought they could sit tight as in 1870 and let the belligerents fight it out. But 1914 was a very different situation from 1870. After a German victory over France and Russia, Britain would have stood alone with the burden of supporting anything that was left of international law or law of any kind in Europe. A few small and utterly cowed neutrals, Norway, Denmark, Holland, Greece, Roumania, could have given her no help. They know well, these small neutrals, what kind of “civilization” German rule means *for alien races*, if Professor E. G. Browne and the eight professors who protested against war with Germany as a “sin against civilization” do not. They know well that the ghost of freedom which still sits quivering amongst them to-day would have flitted off the horizon of Europe under Germanic domination.

Sir John Brunner deserves special mention. Only a year before the war broke out Sir John as President of the National Liberal Federation sent a circular to the Liberal associations urging them to pass resolutions which “would enable the Government to reduce armaments,” and he is quoted by the *Spectator* as saying that he would “infinitely prefer the protection of recognized international law to the protection afforded by our Navy.” Sir John of course knows now how much protection international law has given Belgium, or Danish or Norwegian merchant ships or even a powerful neutral like the United States.

Cabinet Utterances.

The effect of all these voices on the Government was naturally very considerable. It is quite plain from their policy,

from their action during the Agadir incident and otherwise, that some of them at least were fully aware of the danger from Germany's designs. They knew that they dare not face the situation that would be created if France were extinguished as a Power and Russia driven back perhaps to her limits in the 16th century by a huge Germanic and Magyar Federation. Naturally they felt their responsibility and were more cautious in their utterances than the Byleses and Spenders. But all the same in order to please the Radicals, Labour members, and Pacificists in general, and not to be thought Jingo, they kept assuring the country that they did not see the slightest reason for apprehension. Mr. Churchill, speaking to the very Radical constituency of Dundee in 1909, scouted the idea of wasting public money on armaments as part of a showy "sensational Jingo policy" which might be popular with unthinking sections of the community, and declared the idea that there was an antagonism between the interests of Britain and Germany to be the "most fatal obsession that could benumb the brain of a statesman." In 1910 Mr. Asquith said he "could not discern in any quarter of the political horizon any cause of quarrel, direct or indirect, between us and that great and friendly nation (Germany)." Mr. McKenna, then First Lord of the Admiralty, gave the people the contemptuously emphatic advice: "Sleep comfortably in your beds." Some prominent Conservatives, also unwilling to be called Jingo, took the same line in these days. Mr. Balfour "could not conceive what interest Germany had in attacking us" and "did not believe there would be war." Much later, in May, 1913, Mr. Harcourt, the Secretary for the Colonies, said as an argument against increasing the Army estimates: "I can conceive no circumstances in which Continental operations by our troops would not be a crime against the people in this country." With the same object in view, Mr. Lloyd-George told us that for twenty years our relations with Germany had never been so good. As for Lord Haldane, he went about the country preaching a gospel of the pacific intentions of the Kaiser, and the civilizing mission of Germany. He was an optimist, he said, and was proud of it. He scouted Lord Roberts' warnings with regard to Germany and boasted he had buried Lord Roberts' scheme for national service—deep, namely, in his own scheme of "Territorial" volunteers. He admitted Lord Roberts had led troops

with success in the field. "But it was one thing to lead troops in the field, and another to be a strategist. Until a man was a strategist he could not fashion plans and organizations for the defence of his country." He said that was just the kind of understanding he missed in Lord Roberts. (Speeches at Bradford 1911, and the Eighty Club 1912).

And all this was at a time when official Germany was giving the most unequivocal expression to its warlike temper and designs, after Germany had made her attendance at the Hague conference conditional on no motion being brought forward for disarmament, when the Liberals of Germany, even the advanced or Fortschritt group, if I remember rightly, had joined in passing the great armament Bills without a murmur (as "necessary to secure the future of Germany"), and when Bethmann-Hollweg was telling us, in reply to President Taft's schemes for arbitration, that a nation that didn't like the burden of war-armaments, could step down—and out. I have already quoted his words. And General von Einen, ex-Minister of War, was threatening us with the *furor teutonicus* over our opposition in Morocco.* For although we had let Germany have her way in most things, in the control of Turkey, in the Balkans, in Samoa, in the matter of the Portuguese colonies, should they ever come into the market, and in other things, yet we had to oppose her attempt to establish a naval base at the mouth of the Mediterranean. That would be the same thing as reducing the effectual strength of the British navy by one-half. But it was not only official Germany whose utterances were menacing, the Germany that writes and theorizes was quietly seething with war literature, with exhaustive and most Germanic statements of the case against Britain which would include such ancient matters as the disapproving attitude of British diplomacy over Prussia's attack on Denmark and seizure of Schleswig-Holstein, or forgotten sayings of Wellington or Castlereagh at the Vienna Congress.

The Government's concessions to extreme Pacificism were not mere words. On the eve of the great European conflagration, the estimates for the British army and the expenditure

* "The *furor teutonicus* is with us to-day, and we ourselves know it. It will be good for others if they also realize its existence."—General von Einen.

on ordnance and munitions had been considerably reduced. Lord Haldane when he came into office as War Minister cut down the estimates by two millions. He told the good Scotch folks of Auchterarder that he had "cut off nine battalions." They were fine battalions, he said, but he "could not use them." In 1914 the small force of Royal Artillery was reduced by over 5,000 men and the army in general by about 30,000. It was already smaller than that of a third-class European Power.

All that should be a proof at any rate that Britain was guiltless of aggressive designs for she went into this war quite unprepared except for sea-fighting. In 1912 Lord Haldane in fact made a merit of their want of preparation. "The British," he told the Glasgow people, "were always a nation of splendid fighters. They were never ready, but they fought the better the less ready they were."

After reading the many utterances of eminent British statesmen and politicians and of influential organs of opinion like the *Westminster Gazette*, the *Nation*, the *Daily News*, etc., which Mr. Maxse has conveniently collected in his "Potsdam Diary," all assuring us that the danger from German designs was a mere bogey, I do not wonder that many of our Canadian leaders hesitated to believe in the cry of "emergency." How should they be expected to know more about German politics than British statesmen and influential London editors, whose proper business it was to know?

Then the war broke out and there was a sudden realization of the great issues it involved for the British Empire and indeed for the world. The revelations, recantations and explanations came thick and fast from official leaders and celebrities of all sorts. At Liverpool Mr. Winston Churchill now revealed to the country, that they had known all about Germany's designs "for eight or nine years" back:

"Germany began the building of a great navy for our undoing. He was glad to be able to tell his audience what he thought about it now. Every detail of the German scheme proved that it was meant for us—for our exclusive benefit. . . . I have had to see every day evidence of the espionage system which Germany maintained in this country. I have had the evidence put under my eye month after month of the agents whom they have maintained year after year here in great numbers. . . . We have been made the subject in the last eight or nine years, just in the same way as France was before 1870 and

Austria was before 1866 and Denmark was before 1864, of careful, deliberate, scientific, military reconnaissance. Well, we knew all about it."

Two weeks later Mr. Asquith said at Cardiff:

"If we here in Great Britain had abstained and remained neutral, forsworn our word, deserted our friends, faltered and compromised with the plain dictates of our duty—nay, if we had not shown ourselves ready to strike with all our forces at the common enemy of civilization and freedom, there would have been nothing left for us and our country but to veil her face in shame, and to be ready in her turn—for her time would have come—to be ready in her turn to share the doom which she would richly have deserved—and go down after centuries of glorious life, go down to her grave unwept, unhonoured and unsung."

Lord Haldane also assures us now that he was fully aware of the danger from Germany. In an address which he made two months ago to the National Liberal Club, he said:

"I knew something of Germany. I knew the perils of the situation—where the powder magazine was—and I was most anxious that that most unjust and untrue suspicion (that Britain sought to crush Germany) should be got out of the minds of the party in Germany which held the scales. It was not to be. The War Party dominated. I realized that we were fighting for our lives. I did not have the smallest doubt about the imperative necessity of taking part in this war. Had we stayed out with the War Party in Germany in the ascendant I think our shrift would have been very short."

Lloyd-George was franker, as his nature is, or perhaps he knew less. He declared that "when this war broke out, there was not a man in the Cabinet who thought that war with Germany was a possibility." In a speech on the Munitions Bill he admitted to the House of Commons that "we" had been completely hoodwinked:

"Germany has been piling up material. Until she was ready she was friendly with everybody. . . . We really thought an era of peace and good-will had come. At that moment she was forging and hiding away enormous war stores to attack her neighbours unawares and murder them *in their sleep*. If that trickery is to succeed, all will crumble into dust. It is essential for the basis of international goodwill, for the peace of the world that it should fail, and it is up to us to see that it does so."

It is not by way of reproach altogether that I recall these utterances before and after the war, but for the sake of the

lesson they should teach. At first sight it looks like mere dilettanteism on the part of British statesmanship, and no doubt there was a good deal of that in some quarters, though there were evidently wiser heads there too who prepared for contingencies as far as they could. But it is evident that the men who saw and knew dared not tell the country what they really thought about the situation. And what other explanation is there of this except that the extreme Radical section of the Liberal party succeeded in coercing their wiser leaders into silence or into utterances which practically deceived the country? Scientific treatment of national problems is hardly possible where mere organs of party or class fury have so much influence. In short, the present combination of Liberalism and Radicalism, especially Labour Radicalism, neither gives the moderate Liberal leader the possibility of a free and sound development nor the Radical party the education of a really responsible position. It forces the one into a rather hypocritical attitude and makes reckless irresponsible speakers of the other. Neither side faces the realities before it or is quite clear with itself as to what form progress can take. There is abstract moral attitudinizing on the one hand and unscientific clamour on the other.

Pacifism in general will also have to consider the situation more scientifically. There is a loose kind of pacifism which is vaguely founded on Christian sentiment against war. Germany, one of the most powerful nations in the world, has practically abandoned that point of view, and proclaimed war and conquest as the true path of progress for nations, and it is true also that there are no great nations in the world whose history does not contain at least episodes of military conquest, however they may explain them. Nevertheless, the Christian sentiment against war, when it is reasonably understood, may still be considered as a limiting or regulative ideal of civilization. But there is a class of pacifists who not only overlook the fact that the kingdom of heaven is not yet realized on earth but are equally forgetful of the fact that such kingdom, or such approximation to it as man is capable of creating, has to be established by struggle and conflict—material struggle and conflict—with the lower powers of nature in man; that is the history of human civilization; you cannot sit down and let a supposed divine law work out things for you, while you

are comfortably busy taking money into the till and preparing nothing but high speeches at conferences. That would simply be to abandon civilization to the control of the more brutal forces. I suppose that is why the great official churches of Christianity, Catholic or Protestant, have never absolutely refused to acknowledge the principle of war, but only peculiar sects who have no idea of the struggle by which man has advanced from a state of nature, as the jurists call it, to civil society. The nations, therefore, that mean to support this process of civilization or humanity must do it and may long have to do it with the sword by their side. Human affairs are very mixed; in one century it may be one nation that is menacing others and in another, another. It may even be that such domination or hegemony is in the circumstances justifiable by the spiritual force it brings with it and it may succeed.

Some high idea of his destiny in this respect seems to have supported the German in his present aggression on the humanitarian principles and standards of civilization. "Our might shall create a new law in Europe," writes Maximilian Harden, though I would not quote him were it not that he only says more frankly what many other German writers have said in a more roundabout way. In any case the nations can only do their best to discern in what direction freedom and progress lie on any given occasion and act accordingly.

But this form of pacificism at least contains a moral ideal, however vaguely it may be founded on the idea of applying certain sayings of the Sermon on the Mount to international affairs when we never think of applying them anywhere else. It is a spiritual ideal which has its value as a modifying force.

Commercial Pacificism.

A less ideal form of pacificism is that which would avoid war at all costs because it disturbs trade and throws the financial world into confusion. In the last days of diplomatic efforts when the war-cloud drew nearer England, the grave issues revealing themselves ever more clearly in Germany's action, the *Daily News* made the following pathetic appeal to the heart of the nation:

"If we remained neutral we should be, from the commercial point of view, in precisely the same position as the United States. We should be able to trade with all the belligerents (so far as the war allows of trade with them); *we should be able to*

capture the bulk of their trade in neutral markets; we should keep our expenditure down; we should keep out of debt; we should have healthy finances."

So Mr. Hirst of the *Economist* told the country that "as soon as a proclamation of neutrality is issued . . . we believe that a large and legitimate business would begin at once in leading stocks." This looks at first as if there was a strong sense of realities amongst us. But it is a false sense, I think. If the military aristocracies of the German and the Magyar had succeeded in crushing France and Russia, even British stocks, I imagine, would be lower than they are and permanently lower. But old England was not so money-ridden or bedevilled as they thought, and had come to realize that the old fight for the freedom of civilization was on once more, and that the best traditions and the future of the Empire were involved in it.

A finer form of the commercial gospel, the noblest form, perhaps, it is capable of, once lay in the Cobden doctrine that expansion of trade and commerce necessarily makes for peace between nations and will, the greater it becomes, tend the more to remove the danger of war. Cobdenism and Free Trade once went the round of the world with success, about the Sixties, England's position in commerce giving it great credit. But its basis was never wholly trustworthy as any one who reads the history of Dutch and Portuguese trade wars, Venetian and Genoese trade wars, English and Dutch trade wars, and other conflicts of the kind may reflect; every century is full of trade wars from the early battles of Hansa and Norse ships for the commerce of the Baltic downwards. Especially in a commercial age like ours when every great banking syndicate or influential commercial group of interests is looking to its home government to support its interests, to help it to secure concessions, trading rights, port privileges, and what not, to subsidize its steamship lines, to maintain 'the open door' and equal treatment in China, Morocco, or Turkey, or somewhere else, in such an age the government tends to be closely identified with the rivalry of its great trading corporations. The German governments are so particularly, often holding large interests in them. And that rivalry is of the keenest and most sensitive kind. It is the cause of at least half the disputes that have occurred during the last ten or twelve years between

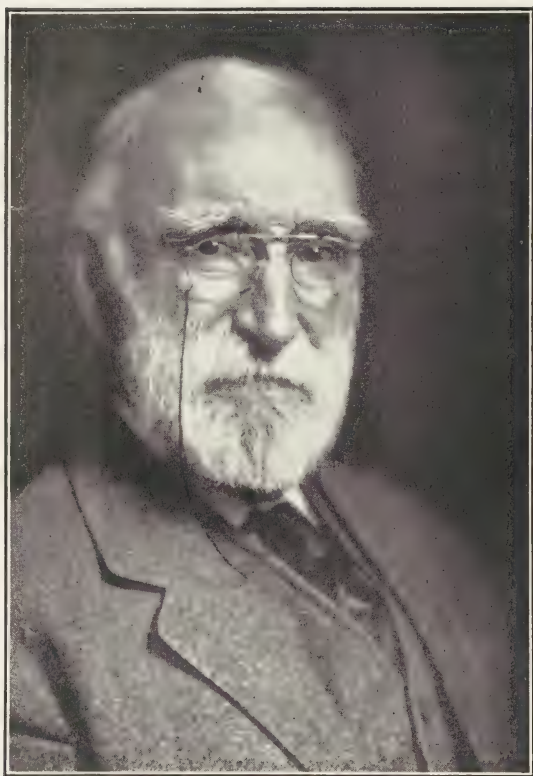
Germany, France and England. Shall Germany have Wallfisch Bay or not? Germany wants this or that slice of Congoland, or trade guarantees in Morocco. German liners are ousting the old P. & O. from its position in the East. And did not one but lately hear the cry? Now, O Americans is your chance to capture the German trade with South American countries. President Wilson himself was with difficulty prevented from turning the State into a shipping firm for that purpose. Germany knows that commerce is under modern conditions a form of international conflict and treats it vigorously and scientifically as such, with the success which all the world has seen and commented on. The Cobden Club, however, and not a few official Englishmen still continue to speak as if trade were nothing but an evangel of peace and good will amongst men. "The world," writes the Right Hon. Herbert Samuel, Postmaster-General, in a pamphlet on the relations of England and Germany, "is gradually coming to see that rivalry in trade is no more a reason for enmity between nations than it is for personal enmity between shopkeepers in neighbouring streets." I would be glad if Mr. Samuel were right but his pleasantly humane words glide over the surface of problems which have troubled philosophers and jurists of all times. What he means to say is that we should all submit to competition with a good grace—even amongst nations over whom there is no tribunal. Yes, granted, and then—. Well, when we look into it again, it means a little more: we must all submit to be ousted or extinguished by competition with a good grace—even amongst nations over whom there is no tribunal. Well, granted, though with some inward quivering. But when we look at it again, it means still a little more, namely this: we must all submit to be ousted or extinguished by competition with Christian grace, even when it is unfair, when the dice are loaded against us, say by State influences, or secret subsidies, or diplomatic pressure, etc., for there is no tribunal over States to which we can appeal. By this time we see the question is getting complicated and hardly soluble by Mr. Samuel's happy phrases about "the development of a foreign nation being a reason not for hostility but for gratitude," since the benefits of wealth and culture spread far beyond their place of origin.

And yet, curious to say, if you believe the Germans, commercial jealousy is Britain's chief reason for engaging in this

war. The Germans are wrong there. Britain would never seek in war a remedy for mere commercial loss, though of course she must protect the commercial interests of the Empire as well as she can everywhere.

Mr. Samuel is a Jew (one of the potentialities of the future Mr. A. G. Gardiner calls him), and I would not like to speculate about him; but it might seem to many as if the Englishman in general rather liked to reside in a sort of moral confusion of ideas or sentiment from which the German has resolutely set out to free himself. There may perhaps be a moral confusion in things—between the material and spiritual principles in the world—to which the Englishman's attitude corresponds better. I hope there is. After all, if you consider his history, there seems to be somewhere in his general policy a wisdom which brings things to his side, or at any rate has brought them there in the past, a wisdom which prompted Tim Healy to ask angrily years ago during the Boer war how long "God was to be on the side of England." One must conclude it is due to moral qualities of moderation, good temper, and a decent respect for justice and humanity—which have their weight on the course of events—combined with energy of action when action at length becomes necessary. Scientific treatment of national problems, however, is difficult in a country where Byleses have so much to say. "We will muddle through somehow," is the Englishman's stock expression for his way of facing a crisis. It is often his modest way of saying that he is doing his best and has confidence in his cause and his resources, but it also confesses the lack of scientific preparation. How long is that to succeed in an age which is becoming more scientific every year?

JAMES CAPPON.



JAMES DOUGLAS, LL.D.

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DR. JAMES DOUGLAS.*

MY father was an eminent surgeon and medical man who came to Quebec in 1824. My mother was his second wife, the daughter of Mr. Ferguson (a sister of Professor Ferguson's father). I was born Nov. 4th, 1837. When still a schoolboy, while my father was in very active practice, my intention was to succeed him, and that was his selection; but health failing him, he retired and confined himself to the management of the Quebec Lunatic Asylum.

In 1845 the grand jury made such a telling presentment as to the old-fashioned treatment which the insane received in the General Hospital at Quebec, that an immediate remedy had to be applied. In order to fulfil this the Government asked my father to make temporary provision for their care while the authorities organized a proper asylum. My father and his partners, Dr. Morrin and Dr. Fremont, met the emergency; but the Government, once having been relieved of its duty, has never since performed its proper function, and Lower Canada is probably the only government in the world which farms out its insane.

Instead of studying medicine, my choice was then theology, and in the fall of 1855 I entered as a student in Edinburgh University. The following year, owing to my mother's fatal illness, I continued my studies during the sessions of 1856-57 and 1857-58 at Queen's College, taking my B.A. early in the spring of 1858. The two following years I studied theology at Edinburgh University, intending to enter the Established Church of Scotland. The third session of the Canadian Synod allowed me to take theological training of Dr. Cook. I was

*A brief autobiographical sketch written for *Queen's Quarterly* by Dr. Douglas.

licensed in the spring of 1861. I never, however, was assigned any regular clerical duties, as, my father's health being impaired, I for some years took an active part in the management of the Quebec Lunatic Asylum. The duties were extremely acceptable to me, and, as I thought it likely I would inherit my father's contracts and succeed him, I commenced the study of medicine. My hopes, however, were disappointed, for my father, shortly after Confederation, was virtually obliged to sell both his interest in the 'Asylum, and his share of the contract to the Hon. Mr. Cauchon. Mr. Cauchon, being a member of Parliament, could not make the purchase in his own name, but used that of Dr. Roi, who had been Medical Inspector during the last years of my father's ownership and management.

Meanwhile, as my father had involved his estate hopelessly in certain mining enterprises, the duty of disembarassing his estate, if possible, from debt, induced me to devote myself almost exclusively to mining and metallurgy. This has been the occupation of my life ever since. I accepted a situation as manager of small metallurgical works at Phoenixville, Penn., in the year 1875. They were not pecuniarily successful, but my experiences as manager have been to me personally of vital value. It was during the eight years of my residence in Pennsylvania that as an expert I became acquainted with certain mining properties in Arizona. I subsequently removed to New York and became the President and Manager of the Company which became the owner of the Arizona mines. My residence has been in New York, though large periods of my life have been of necessity spent in the southwestern portion of the United States and in northern Mexico, where the properties of which I have charge are situated.

JAMES DOUGLAS.

As Chancellor of Queen's University, Dr. James Douglas is a worthy successor to the late Sir Sanford Fleming. The mere list of his past and present offices and distinctions bears testimony to the ability and versatility of Dr. Douglas:—"Member and Vice-President American Institute Mining Engineers, New York; Member of the Iron and Steel Inst. of Great Britain; the North of England Society of M.E.; the

American Geographical Society, N.Y.; the Philosophical Society, Philadelphia; the Society of Arts, London; Member and Gold Medallist of the Institution of Mining and Metallurgy, London; formerly Professor of Chemistry, Morrin College, Quebec; President and Business Manager of the Copper Queen Mining Company, Detroit Copper Company, and others in Arizona, and of the Montezuma Copper Co., Mexico; President of the El Paso & S. W. R. R. and the Nacozari R. R. Companies; twice president of the American Institute of Mining Engineers; President of the Canadian Society of New York; representative of the U.S. at the Mining Congress in Paris, 1900.

Through the courtesy of the American Institute of Mining Engineers the *Quarterly* is permitted to publish the following excerpt from "an appreciation" of Dr. Douglas by Dr. Albert R. Ledoux, written for the January, 1916, *Bulletin* of the Institute. The occasion of this sketch was the presentation to Dr. Douglas last September of the John Fritz Medal for notable achievements in mining, metallurgy, education, and industrial welfare.

"James Douglas was born at Quebec, Canada, in November, 1837. His father was a distinguished physician and surgeon, employing his skill in the field of philanthropy. He established the first retreat for the insane in the Dominion, to which he devoted himself up to the time of his departure from Canada, when it was taken over by the Government.

The son spent two years in study at the University of Edinburgh, which he entered in 1855. Returning to Canada, he graduated from Queen's University, at Kingston, Ontario, with the degree of Bachelor of Arts, having also studied medicine, and later theology. After his graduation he travelled extensively with his father in Europe and in the Orient, visiting Egypt several times. They returned with important archæological collections, which Dr. Douglas subsequently donated to the Metropolitan Museum of Art in this city. He then returned to Edinburgh, where he continued his course in medicine, surgery being perhaps his chief interest at that time. He was subsequently licensed to preach and his contemporaries bore testimony to his broad philanthropy and to the sympathy which dominated his every act. His taste was distinctly literary and he carried off a prize at Edinburgh in English literature.

While still looking toward the ministry or medicine, or a combination of both, as probably his life work, and still occupied with his pen in literary lines, circumstances caused a complete change in his plans. His father had invested heavily in gold and copper mining in Canada and seemed likely to lose a large part of his savings, because while the mines contained considerable 2 per cent. copper ore, there was no process which seemed to be satisfactory for its economical extraction. Dr. Douglas, with his versatile mind, had been interested during his college career in chemical subjects, and had, indeed, taught chemistry for three years at Morrin College in Quebec. There he made the acquaintance of the late T. Sterry Hunt, distinguished in many branches of science. Abandoning his teaching and his studies, he went into the mining field and endeavored to rehabilitate his father's investments, and in association with Dr. Hunt worked out the well-known Hunt & Douglas process for the extraction of copper.

He came to this country in 1875, being employed to apply this process to the product of the Jones mine in Berks County, Pennsylvania, as Superintendent of the Chemical Copper Co. at Phoenixville. They not only treated ores and pyrites cinders by leaching, but smelted and refined base metal. This plant was not successful and later everything was lost through a fire. It is possible that one reason why this company was not successful was because of the philanthropic tendencies of its technical head; for instance, he says that he paid \$1.50 per day—big wages in those times—for the most ordinary labor, whereas Mr. John Fritz, in whose honor the medal is bestowed, and others in the smelting business, paid only from 80 to 90c. a day for similar work. Although the venture was not a financial success, Dr. Douglas learned there much about copper processes. After the fire at Phoenixville, Dr. Douglas was without fixed employment, although he did some professional work for people engaged in mining and metallurgy. He made several visits to Butte, Mont. Recently a pioneer in that field publicly said that Dr. Douglas was the very first to predict the secondary enrichment in that area.

In the *Bulletin* of April, 1915, Mr. H. W. Hardinge writes as follows:

"When Dr. Douglas visited the Arkansas Valley Smelting Company's plant at Leadville, 25 years ago, I was its manager.

A casual remark of his was the basis of certain changes in smelting operations through the conversion of a lead stack into a composite lead and copper furnace. One-half per cent. of copper in the form of ore was added to the charge. The resulting slags immediately dropped from 3 or 4 oz. of silver per ton to less than an ounce. Later several thousand tons of lead slag was economically re-run, owing to the change indicated. The profit and loss balance had for several months been in 'red,' but within two months after the change was made, the books showed a profit of \$5,000, with a slag content of less than 1 oz. of silver; at the end of five months, the profits increased to \$17,000. Thus a casual remark resulted in the changing of copper smelting in Colorado. Other smelters adopted the same or similar methods.

"One of my colleagues, in commenting upon the production of lead and copper in the same stack stated that it was impossible. This may have been a very well-based opinion, but during the discussion, there was a check upon my desk in payment for this 'impossible product' of lead bullion from a copper stack."

An accident brought him into contact with the old metal house of Phelps, Dodge & Co. When the Copper Queen mine was first opened by Martin and Reilly, the first carloads of copper bars were sent to Phoenixville to be refined by Dr. Douglas' works. He had been introduced to Mr. William E. Dodge and had been retained to report on the Detroit Copper Co.'s mines in Arizona. This firm was conservative in the extreme and, while very large sellers of metals, had but recently entered into the mining field, considering mining somewhat of a gambling venture. Urged by an acquaintance, they had taken an option on the former Copper Queen—the original of the name—in Arizona, and engaged Dr. Douglas to examine it. They agreed to pay his expenses and to furnish him with a certain sum of money with which to test the property, promising that if they took it over on his recommendation, they would place the management in his hands and give him an interest.

The world knows to what great heights Phelps, Dodge & Co. have attained in the mining business. Dr. Douglas, upon the incorporation of the firm, became its President. The writer feels sure that those who have succeeded to the control of this

corporation after the deaths of Messrs. William E. Dodge, Senior and Junior, and of Mr. D. Willis James, will not resent the statement that in the writer's opinion, Dr. Douglas supplied the imagination necessary in all great enterprises, while they supplied the money and equally important careful business management. To use a few illustrations of what is meant:

The product of the smelter at Bisbee was hauled several miles to the railroad by mules. He put in the first traction engines employed in the Southwest. This method becoming too slow, he built the railroad from Bisbee to Fairbanks, the junction with the Southern Pacific. When the product of the Copper Queen became too great to handle economically at Bisbee, it was his idea to establish at Douglas the beginning of the great smelting plant which to-day is second to none—if not in capacity, at least in well thought-out installation and correlation of its parts—in efficiency and economy in management.

Looking further ahead than the life of the Copper Queen, it was Dr. Douglas who suggested the taking over of adjoining properties in the Bisbee camp, and the agreement to disregard the law of the apex and questions of extra-lateral right, so there has been no litigation at Bisbee from these fertile sources of trouble in most mining camps.

It was Dr. Douglas again, when fuel became expensive and irregular in delivery, who suggested the organizing of a coal company to supply their own needs and to enable them to sell coal and coke to others without paying tribute in high freights to the railroad. Again, it was his suggestion that branch lines should be built into Mexico, where, on his initiative, Phelps, Dodge & Co. had already secured important producing mines, destined to add a very considerable tonnage to their output of copper.

Dr. Douglas' liberality and broad-mindedness made him the friend of the profession of mining and metallurgy. Mines he controlled were always open to any engineer having any excuse to study them, as were the smelting plants, he believing that free trade in ideas worked to the advantage of all concerned. The writer at the risk of making unduly long this appreciation of a great man, cannot refrain from setting down an experience of his own, proving the truth of this theory. Dr. Douglas and he were visiting certain works at Swansea to in-

spect and report upon a patented process or machine, the inventor of which had the right to show it. We were hurried through the old-fashioned smelter, the proprietors evidently not wishing us to see anything except the particular apparatus which was the reason of our visit; but passing a small converter with which some men were tinkering, Dr. Douglas asked them what they were trying to do. With a little reluctance, they told him that they were trying to Bessemerize a 37 per cent. copper matte, but that their experiments were unsuccessful because their charge continually froze. He asked them what was the pressure of air blast they employed. They said, so many ounces. He replied, "No wonder you froze up! Give the furnace so many pounds." The superintendent exclaimed, "Why, if only a few ounces of air blown in freezes the charge, the same result would be hastened if we increased the pressure!" Nevertheless, they apparently tried it after we left, and when we arrived at our hotel in London, he received a telegram from the works manager, telling him of their success and thanking him for his hint. Afterwards, he received a formal vote of thanks from the Directors.

The mines and railroads controlled by Phelps, Dodge & Co. in the active management of which Dr. Douglas, as President, has been prominent up to the present time, have been very profitable. The most modern devices have been adopted in mills and in smelteries; for instance, he was the first in America to install for the generation of electric power at such plants very large gas engines using wood, and Loomis gas producers. He also was one of the first to introduce in the Southwest the Bessemer converter and the first in the country to employ the trough form.

During all these years of active business life, busy with invention or adaptation of processes, with expansion and consolidation, Dr. Douglas' pen was at work in other fields of thought and activity, and his benefactions were also many. While most of the latter are not known to the public and should not be mentioned here, there is hardly a deserving philanthropic effort in the vicinity of New York or in Eastern Canada that has not been helped and stimulated by him. Among his public benefactions are endowments of colleges, of the Radium Institute in London, the giving of large sums of

money in this country to promote the study of cancer, and many others which need not be specified.

He was given the degree of LL.D. both by Queen's University and by McGill University; has been twice President of the American Institute of Mining Engineers. He has been the recipient of the gold medal of the Institution of Mining and Metallurgy.

A list of his writings, would be too long for the purposes of this article, but among them may be mentioned:

The Copper Deposits of Harvey Hill, 1870.

Spectroscopic Observations of the Sun, 1870.

The Copper Mines of Chili, 1872.

Copper Mines of Lake Superior, 1874.

Metallurgy of Copper, 1883.

Cupola Smelting of Copper, 1885.

American Methods and Appliances in the Metallurgy of Copper, Lead, Gold and Silver, 1895.

Progress of Metallurgy and Metal Mining in America during the last Half Century, 1897.

Record of Boring in the Sulphur Spring Valley of Arizona, 1898.

Treatment of Copper Mattes in the Bessemer Converter, 1899.

The Characteristics and Conditions of Technical Progress of the 19th Century, 1899.

Gas for use in the Manufacture of Steel, 1902.

Untechnical Addresses on Technical Subjects, 1908.

The Influence of Railroads of the United States and Canada on the Mineral Industry, 1909.

Earthquakes in Mines, 1911.

Developments of the Railroads of North America and their Control by the State, 1911.

The Copper Bearing Traps of the Coppermine River, 1913.

Many of the above citations and many others appeared first in the Transactions of various technical and other societies, but in addition to these, Dr. Douglas has given us several historical volumes, among them:

Canadian Independence, Annexation and Imperial Federation.

Old France in the New World.

New England and New France.

Journal and Reminiscences of James Douglas, M.D., by his son.

Enough has been said to show how worthy is the recipient of the distinguished honor conferred upon him through the award of the John Fritz Medal. Personal and intimate association of many years' standing and in many fields of activity, have only served to deepen the admiration of the writer for Dr. Douglas, as a man, as a scientist and as a gentleman. Although thinking great thoughts and being associated with great men, nothing was too small to escape his attention; nothing too insignificant to awaken his sympathy. Possibly even in the pages of a publication devoted to technical things, it may not be out of place to say that once when the writer was associated with him in the testing of tin mines in North Carolina, we came across an old prospect shaft, some 10 ft. deep, in the bottom of which he saw a number of frogs or toads which had fallen in and could not escape. Although his time was limited and the work ahead considerable, he insisted upon bringing a fence rail, clambering down, catching the elusive prisoners and tossing them out to safety before he would go on."

INTRODUCTION TO THE STUDY OF CLOUD FORMATIONS.

IN the earliest literature of India, the clouds are spoken of with adoration as the clouds of heaven, which, passing over the land, drop down upon it the milk of fatness. Then, as now, it was water that made the difference between the rich meadow and the desert, between fertility and barrenness; and except in a few cases, where irrigation is practised, or where a river like the Nile overflows periodically, man has always depended on the clouds to supply the water necessary for the growth of vegetation. While unsuccessful attempts have been made to force the clouds to give up their moisture, and the weather remains a thing beyond the control of man, it is not beyond the range of possibility that rain may be made to fall, but it is not likely to be done in the near future. Sir Oliver J. Lodge has recently proposed a scheme for the control of the weather. He says that since the air is usually electrified positively during clear weather and negatively during stormy weather, it might be possible by means of kites to electrify the air in such a way as to dissipate clouds and bring clear weather, or to cause rain after a drought. This should not be taken too seriously, however, and we must remember the tremendously large scale of such an operation. In Austria, it is claimed that destructive hail storms are prevented by the bombardment of the heavens, using peculiarly constructed cannon, but it is not a credited fact. The United States Government has even appropriated money for the purpose of investigating the possibility of rain production by means of explosions of dynamite high up in the air, but no success has resulted.

Being so dependent on the clouds and so powerless to affect their operations, the next best thing we can do is to study them in order to be able to anticipate their operations. It is quite natural then, that men have been given to examination of the heavens for ages and have acquired a considerable degree of skill in interpreting the appearance of the clouds. Farmers, sailors and other people whose lives are spent out of doors and to whom the state of the weather is all important, have developed remarkable ability in weather prognostication.

The careful study of cloud formations and the motions of clouds in their broader meteorological and scientific aspects, however, is a comparatively modern science. This study involves not only the examinations of cloud forms but measurements of their altitudes and velocities. With a little experience, any one may forecast the weather for a few hours ahead with a fair degree of success, and the Weather Bureaus with their equipment of many observing stations, with measuring instruments and experience, may foretell the weather for two or three days in advance. Scientists hope eventually to unravel the mysteries of weather control and to forecast weather months or even years in advance. We find illustrations of the more elementary type of forecasting which depends largely upon the appearance of the clouds, in the words of St. Luke, "When you see a cloud rise out of the west, straightway you say, there cometh a shower, and so it is", and also in St. Matthew we find, "When it is evening ye say it will be fair weather, for the sky is red, and in the morning it will be foul weather to-day for the sky is red and lowering." Again in the 1st Kings, we find, "And it came to pass at the seventh time that He said, 'Behold there ariseth a little cloud out of the sea like a man's hand,' and He said, 'Go up, say unto Ahab, prepare thy chariots and get thee down that the rain stop thee not.'" So we see that weather forecasting is an ancient art, even if in those days it could not have been called a science. But Jerome K. Jerome says in his delightful little book, "Three Men in a Boat," "Who wants to be foretold the weather; it is bad enough when it comes." Of course he spoke of English weather.

The following description of cloud forms is intended to be an introduction merely to a study of cloud phenomena to enable any who are interested to name the principal cloud formations and to interpret them as indications of the condition of the atmosphere. In these days of aviation, it has become very important to know something of the motion of the upper air and the clouds offer considerable help, which if not sufficient is valuable. The photographs are of type forms and are, of course, well defined. More often than not, the clouds are less definite than the pictures would seem to indicate, and practice alone will enable the observer to identify obscure formations. Frequently it is difficult to say whether a given form falls within one group or another, often indeed it might

be called either. For the interested reader of this paper who wishes to go farther, no book can equal Clayden's *Cloud Study*, published by John Murray, London, which contains pictures of a very great variety of forms with well worked out explanations. The U. S. Government publishes a coloured chart of cloud form, which can be purchased at a small price, and there is also the magnificent *International Cloud Atlas* published by Gauthier-Villars, Paris. Finally there is the excellent article in *Encyclopaedia Britannica*, also by Clayden.

What is a cloud? Clayden says, "A visible mass composed of small particles of water or ice, suspended in the air, formed by condensation from water vapor." Some clouds are nearly invisible, being composed of particles so far apart as to affect the passage of light through them to a very small degree, but their presence is betrayed by the formation of halos or sometimes by the greyish or whitish appearance they give to the otherwise blue sky. Roughly speaking, all clouds are much alike, but careful examination shows several types which are quite distinct in small details and we learn that different types are formed under somewhat different circumstances. They differ in altitude and velocity as well as in appearance. To study them intelligently and to be able to speak of them intelligently, we should have names to apply to the different classes. It was not until 1803 that satisfactory names were suggested by Dr. Luke Howard, an English observer, who called the high, fleecy, threadlike or banded forms, *cirrus* and gave the name *cumulus* to the lower, heavier, balls, or rounded masses, and the name *stratus* to any clouds arranged in even layers. These names are still used but others have been added. The name *nimbus* has been applied to any clouds from which rain falls. By combinations, such as *cirro-cumulus*, *cirro-stratus*, *cumulo-stratus*, *cumulo-nimbus*, etc., the list was made fairly complete. With these additions the United States Weather Bureau classification of many years ago was made. While this list served its purpose, it was found that improvements along several lines were possible. So at the International Meteorological Conference, held in Munich, in 1891, which met for the purpose of organizing a concert of cloud study all over the globe, Prof. Hildebrandsson of the University of Upsala, Sweden, and the Honourable Ralph Abercromby jointly submitted a classification scheme which was adopted,

and is now used everywhere. It is called the International System of Cloud Classification, and is given below. The altitudes are approximate average values. It should be remembered that the clouds are lower in winter than in summer, so that the altitudes given in the table are rather large for winter clouds, and small for summer clouds.

- A. Upper clouds,
 - (a) Cirrus, 25000-30000 ft.
 - (b) Cirro-stratus, 24000-27000 ft.
- B. Intermediate clouds,
 - (a) Cirro-cumulus 15000-25000 ft. and alto-cumulus, 12000 ft.
 - (b) Alto-stratus, 6000-18000 ft.
 - (a) Strato-cumulus, 6000 ft.
- C. Lower clouds,
 - (a) Strato-cumulus, 6000 ft.
 - (b) Nimbus, 2000 ft.
- D. Clouds of ascending currents,
 - (a) Cumulus, 4500 ft. and cumulo-nimbus 4500 ft.
- E. High fogs,
 - (b) Stratus, 1500 ft.

From A to E they are arranged in order of altitude, (a) marks clouds in detached forms which occur usually in dry weather, while (b) marks extended forms. The principal additions to the older classifications are the so-called alto clouds. They did not appear in the earlier classifications for the reason that they are less easily identified and were not recognized as a distinct class.

The atmosphere of the earth is composed of a mixture of a number of gases, oxygen, nitrogen, carbon dioxide and a few others in small quantities which are unimportant, and water-vapour whose relative amount is small but which is most important. It is the only one whose amount varies to any extent and its variation is a most important thing to life on the globe. It varies not only from time to time but with the locality. This water-vapour is invisible and much like any gas in its behaviour. There is always some in the air and the amount present is measured by what we call the humidity. It is difficult to realize the grandeur of the scale of operation of Nature, but a single figure computed by Sir Arthur Schuster from the rainfall records will be instructive if not startling.

He states that in each second there are 26,000,000 tons of precipitation on the entire globe. All this water existed in the form of vapour in the air before it fell. So, while the amount in the air is relatively small, it is actually very large indeed.

There is a law regarding the amount of water-vapour in the air which is as follows: at any given temperature the amount of water-vapour in the air cannot exceed a certain maximum amount and the amount that can exist in the air becomes larger as the temperature rises. Of course there can be less than this maximum amount, and this is the usual state of the air. If the amount present at any temperature reaches the maximum, any further addition or any cooling of the air, will bring about a condensation, and then the moisture becomes visible in minute drops of water. When the air contains the maximum amount at any temperature, it is said to be saturated and the humidity is 100 per cent., i.e., the moisture is on the point of condensing. We may illustrate the difference between water-vapour and condensed moisture by reference to a tea-kettle from which a current of steam is issuing. Near the spout the current is invisible and this part is water-vapour or steam. When the moisture condenses, we have a visible current of small droplets forming a veritable cloud. Beyond the visible current it is clear again where the small droplets have evaporated again and have been absorbed by the air. If this moisture-laden air could be chilled, a cloud would form again. So for cloud formation we need a comparatively high humidity, that is, the air should be nearly saturated with moisture. Then if the air be cooled in any manner, drops of water will appear. Every child is familiar with cloud formation as he sees the moisture in his breath condense on a cold day. The moisture in the air expelled by the lungs is condensed into droplets which presently evaporate again.

Some form of nucleus is necessary for easy condensation. These may be particles of dust, ions or as has been suggested recently, soluble components of air in gaseous form. Of course these nuclei are always present in the atmosphere, so the droplets form without difficulty. A very large number of these droplets floating in an upward current of air, or falling slowly, forms a cloud. If the moisture is condensed in very cold air, ice crystals will be formed which may remain separate or may

grow into intricate forms, forming snow-flakes. The more important methods of cooling the air to form clouds are as follows:—

1. Loss of heat from moist air due to the contact with the cold surface of the earth, resulting in low lying clouds or fogs.

2. Mixture of unequally heated masses of air at or near saturation.*

3. Air currents with different velocities giving rise to cloud billows or waves.

4. Decrease in temperature due to a rising current of air with attendant expansion under reduced pressure, which is by far the most common and extensive method of cloud formation.

5. Decrease in barometer pressure due to an approaching storm, giving rise to cirro-stratus and perhaps other forms of stratus clouds.

6. Cooling by radiation of heat from moist air. This is noticed in early morning in still cold air.

There are other minor causes of cloud-formation, but the above are most important.

Let us now take up a study of the various cloud forms, beginning with the lowest and passing from one level to another until we reach the highest cirrus cloud. The lowest clouds are the low-lying stratus clouds or fogs, formed by cooling the air, by contact with the earth, until the temperature falls below the saturation or dew point. This form of cloud is seen lying very low, frequently in late summer, over lakes and rivers. In this case it is transient and soon disappears under the rays of the sun. There is no essential difference between a cloud of this character and any other low cloud. It is usually called a fog, but passage through an ordinary cloud, in a balloon, would be the same experience that is so familiar in an ordinary fog. Occasionally in a very dense fog the drops of water coalesce to form large drops like rain. In some localities these are called *fog drops*. When this cloud is higher it becomes common *stratus*. At still higher levels it becomes *alto-stratus* and at very high altitudes *cirro-stratus*. Pure

* This method of cloud formation is probably less important than was formerly believed.

stratus is not a good subject to photograph, but occasionally the edge of a sheet can be taken.

The next higher group contains the *cumulus* and the *cumulo-stratus* or *strato-cumulus*. Cumulus clouds are the clouds of summer *par excellence*, formed by the rapid ascension and cooling of warm moist air. When the air rises it is cooled, and since in rising it enters a region where the pressure is lower it expands, and is thus cooled much more. You will remember that the amount of moisture which the air may contain, depends on the temperature. So with a moderate degree of moisture in the air, a small amount of cooling may bring the temperature down to saturation point. If it does, moisture is condensed on small nuclei and we have one of the grandest spectacles in Nature, the cumulus cloud, which is the visible top of an invisible ascending current of moist air.

Cumulus clouds are always formed in rising currents of air. They may be of two kinds, cyclonic, that is, those which appear after a cyclonic storm, and the ordinary heat cumulus cloud due to convectional circulation, caused by the rays of the sun. The latter form usually appear on a summer day, during the late forenoon, reach their maximum size about two o'clock, and disappear toward sunset. These are the clouds which appear so often in paintings of summer scenes by such artists as Hobbema. Figures 1 and 2 are common cumulus clouds. The characteristic features are the broad flat bases and the irregular but well outlined tops. These clouds may grow rapidly and become very large in clear weather, particularly after a heavy rain, but are usually seen on any clear summer day. Sometimes they become so large that they produce rain. According to Clayden, whether a cloud will produce rain or not depends on its thickness. In winter no rain or snow will fall from a cloud unless it reaches a minimum thickness of at least 300 feet, while in summer it must be thicker. The size of the drops as well as the heaviness of the rain increases as the cloud gets thicker.

When spread out in a layer where they meet together to form a heavy, nearly continuous extended mass, these clouds are called *cumulo-stratus*, or *strato-cumulus*, and if perfectly continuous become common *stratus*. Figure 3 is of this type of cloud. When torn by the wind as in Fig. 4 these clouds become *fracto-cumulus*. This type of cloud furnishes the



1. Cumulus

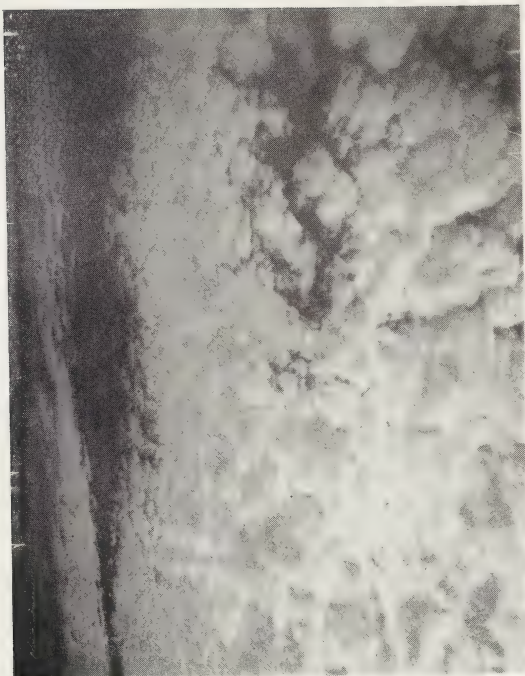


3. Strato-Cumulus



2. Cumulus





7. Alto-Stratus



5. Alto-Cumulus

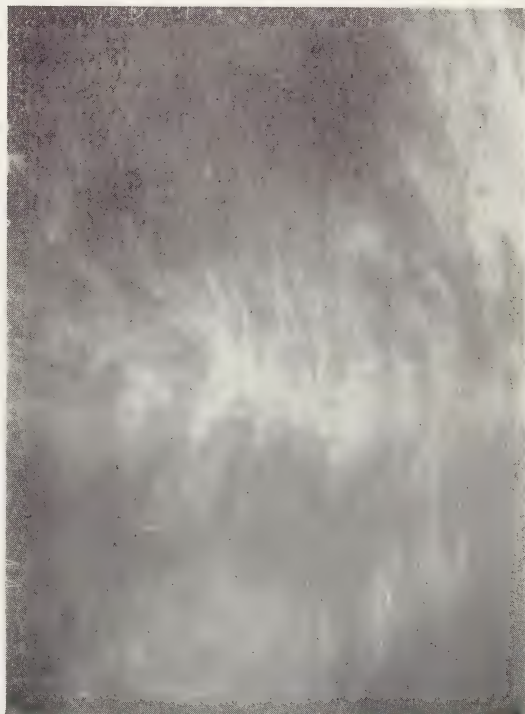


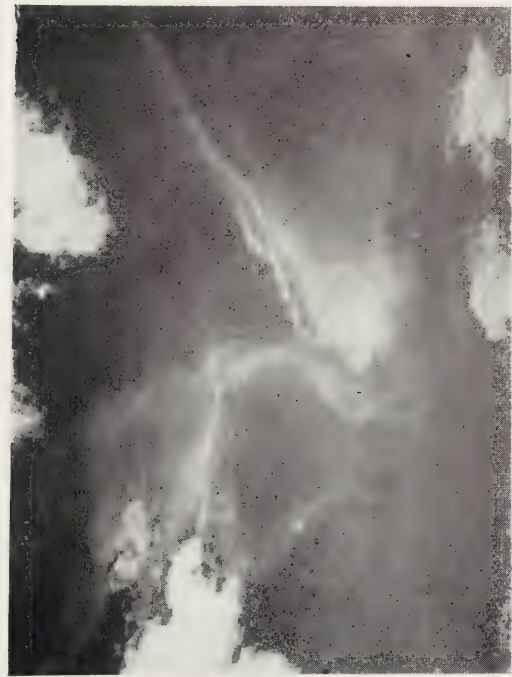


9. Alto-Waves



11. Cirrus





13. Cirrus and Fracto-Cumulus



15. Cirrus

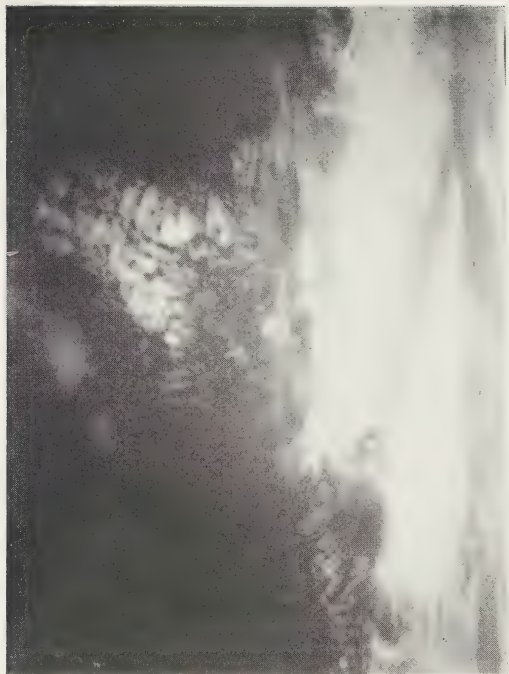


14. Cirrus and Cirro-Stratus





17. Cirro-Cumulus, Mackerel-sky.



18. Cirro-Cumulus and Cirro-Stratus



19. Small Cumulus Nimbus

means of conveying the idea of a windy sky in landscape painting.

Above the cumulus clouds are the so-called alto-clouds, composed of water particles like the cumulus clouds, though probably often below the freezing point. That water may exist below the freezing point is a well known fact. The familiar ice-storm is an illustration of this. The alto-clouds extend from the level of the cumulus clouds to the level of the cirrus. They are less dense than the cumulus clouds and differ from the cirrus in that they are composed of water drops and not ice particles as are the cirrus clouds. We may distinguish between clouds composed of water particles and those of ice particles by the appearance presented when they float before the sun or moon. A thin cloud of ice particles gives a halo whose diameter is about 22 degrees. Careful examination shows the halo to be coloured with red on the inside and blue outside. A thin cloud of water particles does not show a halo but a very much smaller, brighter ring, called a corona. The colours in the corona are arranged in reverse order to those of the halo and we find red on the outside and blue on the inside of the ring. The alto-clouds are not as definite in shape as the cumulus, and are generally higher and consequently thinner. If the alto-clouds are in small tufted masses, they are called *alto-cumulus*. Figs. 5 and 6 are alto-cumulus clouds and Figs. 7 and 8, alto-stratus. In Fig. 8 there is a small cumulus cloud below. The alto-cumulus grade into ordinary cumulus on the one hand and cirro-cumulus on the other, according to altitude. They are usually fair weather clouds.

If these alto-clouds are spread out in an extended layer they are called *alto-stratus*. The alto-stratus is often a thick veil of bluish or grey colour and grades into cirro-stratus with increase in altitude. The alto-cumulus are often drawn out into wave form. That two air currents with different velocities and temperatures may produce peculiar wave-like clouds was shown by Helmholtz. He maintained that the effect would be similar to the formation of waves on water, but very large, of course, and moving very slowly. Where the waves rise we will see the crests because of the condensation which takes place as the air rises and cools by expansion. Where they sink in the trough, we have warming attended by evaporation, so the air remains clear. We may see then under proper condi-

tions a series of billow-like clouds, which show as the crests of a series of atmospheric waves. Fig. 9 is a picture of such cloud waves.

Higher than the alto-clouds, are the *cirrus* clouds, which are the highest of all. These are formed by the condensation of water vapour into ice particles which float in the air, either falling slowly or sustained by a gently rising current of air. These clouds may be as high as six miles and appear as threads, wisps, bands, Figs. 10, 11, 12 and 13, or in widely extended masses, when they are called *cirro-stratus*, Fig. 14. Fig. 14 shows both *cirrus* and *cirro-stratus*.

The *cirrus* clouds are of fine fibrous texture, generally of white colour. *Cirro-stratus* clouds form a thin veil, giving a whitish appearance to the sky, sometimes a distinct *stratus* exhibiting tangled fibres (Fig. 15). The *alto-stratus* are more greyish or bluish. If in balls or lumps they become *cirro-cumulus*, Fig. 16, and usually have no shadows and are occasionally arranged in groups, rows, or ripples. If arranged as in Fig. 17 the cloud is known as Mackerel sky. Fig. 18 shows both *cirro-cumulus* and *cirro stratus*. Many forms of *cirrus* clouds are transient and form and disappear due to minor disturbances in the air. But the type that appear in long bands or in a sheaf of long fibres running in a general easterly direction are forerunners of a cyclonic storm, the ordinary storm of this latitude. They are probably formed in the overflow at the centre of the storm. These thicken as the storm approaches, until the sky is entirely overcast. The clouds thicken still more and extend lower until the rain begins.

No account of cloud formation would be complete without a mention of the grandest cloud of them all, the *cumulo-nimbus* or thunder storm cloud, or *thunder-head*, as it is called. It is a *cumulus* cloud that is overgrown and developed to an extent far beyond that of the ordinary *cumulus*. It is found usually during a warm period of comparative quiet when there is a decided inversion of temperature so that the air near the earth is warmer and lighter than the air above. Hence a condition of instability obtains that finally results in a violent uprush of warm air into the region of *cirrus* clouds. This uprush forms a cloud that begins like a *cumulus* but goes much farther and involves electrical disturbances and violent rainfall with wind. One of the characteristic features of the *cumulo-nimbus*

clouds is the outrush above in the form of cirrus streamers seen in Fig. 19, and the peculiar shape of the cloud. Thunder storms are among the most interesting as well as terrifying of all natural phenomena. The darkness, the quiet, the sudden squall, the lightning and thunder and the the roar and rattle of rain and wind are all so familiar that they need no description. The belief is growing that the lightning is caused by the conducting moist air of the storm, allowing the positive charge of the upper air to come down into the negative region below. Whatever its source, it represents operations on a very large scale, whose energy may be harnessed some day in the future.

Of course, unless special pains are taken in making cloud photographs, the results are disappointing. As all photographers know, the ordinary photographic plate is most sensitive to blue and violet and not very sensitive to red and yellow. So the blue of the sky acts on the plate nearly as much as the white of the cloud; thus the cloud will be almost invisible if photographed in the ordinary way. The pictures accompanying this paper were made by placing a ray filter, which is merely a piece of yellow glass, in front of the lens. This filter cuts down the amount of blue light passing through the lens so that the sky is relatively inactive on the plate. The cloud impresses its image largely by the yellow and red of the white, the blue being removed. In this way good pictures may be made. Ray filters are sold by all dealers in photographic goods. Then if in addition a plate specially prepared to be sensitive to yellow is used the result is still better. Ilford's chromatic plates are very good and all of the photographs used in this article were made on chromatic plates, using a colour screen or ray filter.

A few words concerning weather proverbs may not be out of place. Weather proverbs are of two kinds, mere superstitions and those based on observations of meteorological phenomena and the behavior of animals and plants. Such proverbs as

"Rainbow in the morning, sailor take warning;
Rainbow at night, sailor's delight,"

are examples of the second class. A rainbow in the morning, when the sun is in the east, is due to the sun's rays shining on rain in the west, and since most storms move from west to east the phenomenon indicates approaching rain. The rain-

bow in the evening is due to rain in the east and the storm is receding. "Mackerel sky and mares' tails make lofty ships carry low sails," is another of the same class. Mackerel sky is the cirro-cimulus cloud formed by the thickening of cirrus clouds, while mares' tails are the growing extended cirrus which show the approach of the storm. The behavior of animals and birds are frequently reliable sources of weather prophecy. This behavior, depending on barometric pressure, humidity, and temperature, is due to the attempt made by the animals to accommodate themselves to new conditions and do not indicate any prophetic insight. The present conditions react upon them and the future is quite unknown. The cries of birds are no more prophetic than the behavior of the barometer. Probably in human beings rheumatic pains and increased sensitiveness of corns are on the same level of reliability and have the same explanation. They are due to present conditions and not to future ones. Such expressions as "Squirrels gather more nuts before a hard winter," the doggerel about St. Swithin's Day, and any other prophecy based on the phenomena on any particular day receiving a special name, are mere superstitions. The predictions of weather based on the positions of the heavenly bodies are no better. Jameson suggests that most weather rhymes of this class are on the par with the tombstone epitaphs of a bygone day, not necessarily truthful but interesting and tuneful. He quotes one old epitaph said to have been discovered on a seventeenth century tombstone in an English country churchyard, which is very much to the point:

"Here lies the body of Thomas Woodhen,
The kindest of husbands and the best of men."

Underneath was added, "His name was Woodcock but it wouldn't come in rhyme."

Roughly, we may divide the atmosphere into three layers. First, there is the region in which the temperature falls as the altitude increases. This reaches to about nine thousand feet and is the region of clouds and storms, and is frequently subject to local inversions. If we should take a thermometer up in a balloon we should find that the temperature falls steadily as the altitude increases, a fact well known to every one. Occasionally there is an inversion of this condition so that the tem-

perature rises with increasing altitude. This is what is meant by an inversion of temperature. At low levels it is always local and does not extend to great height. It will be understood readily that the normal condition of falling temperature with increasing altitude is a condition of instability. For as the air is heated it expands, becoming lighter, so that heavier, cooler air may crowd it out aloft. If this circulation does not occur the air is unstable. An inversion of temperature is a condition of stability, on the other hand, since the lighter air is above, so there is no tendency toward circulation. The ordinary instability is what gives rise to much of the movement of the atmosphere. Above this region of local inversion we have the region of uniform change extending to thirty thousand feet. In this layer, the temperature falls steadily and the air is not subject to much disturbance and never to inversion. This is the region of cirrus clouds. Above this, extending out to unknown distance, is a region of rising temperature. Of course, this is too far above the surface of the earth for balloons carrying men to penetrate, partly because it would be unable to sustain a great weight, and also because it is too thin to support life. However, sounding balloons have been used to explore it. A sounding balloon is simply a small balloon to which are attached recording instruments, such as barometers and thermometers, and sometimes hygrometers for measuring the amount of moisture in the air. These sounding balloons, which have been used in various parts of the world during the last ten years, have given us a large amount of information concerning this hitherto unknown region. The Dominion Meteorological Service is doing good work with these sounding balloons under the direction of Mr. J. Patterson. One of the most interesting things is the fact just mentioned, namely, the rise in temperature above the thirty thousand foot level. Up to this point the temperature falls steadily except in local inversions and goes down to about 55°C. below zero. From this point on, temperature rises again slowly, although sometimes it is found to change very little and some observers have reported a slight decrease in temperature. The best authorities, however, regard the change in temperature as a rise. This region has been called erroneously the isothermal layer, because it was thought to have a nearly uniform temperature. How far out this rise of tem-

perature is maintained we do not know, but it is likely that the temperature falls again to a very low value, the temperature of interstellar space. We have very much to learn about the condition of the air at these very high altitudes. Besides the knowledge of the temperature which has been gained, we have learned something about the amount of moisture in the air, which is very small indeed, and about its motion. Apparently when one of these sounding balloons passes into this layer, its velocity of motion (horizontally, of course) is very much decreased, that is, this upper air does not partake of the general circulatory motion of the lower air. Humphreys says that it floats on the lower air much as oil on water. Apparently the only means of studying this region of the atmosphere is by means of sounding balloons because there are no clouds above the thirty thousand foot level. Clouds are formed by the cooling of a body of air containing moisture, usually by rising and expanding. In this upper layer there appear to be no rising currents, in fact very little current at all, so there is no chance for cloud formation.

Another interesting line of investigation is the electrical condition of these upper regions of the air. One problem in connection with the transmission of signals through space by wireless telegraph is this. The signals pass out from the sending station in all directions and direct lines. How then do they pass around the earth in the curved path over thousands of miles? It may be that the signals are reflected from the upper layer of the air which is probably strongly ionized, maybe by the flying electrons from the sun. This is one of the explanations offered but as yet we have very little information regarding the electrical condition at these high altitudes. Lower down our knowledge is not so limited. For instance, we know that in fair weather the air is usually positively charged. The amount of this electrification may be measured very easily, but not so easily in an apparatus to be carried in a small balloon which must record the indications at the various levels, and we have very little knowledge of the upper air as yet.

A. L. CLARK.

THE PASSION PLAY AT OBERAMMERGAU.

AT such a time as the present, when the state of war existing in Europe compels us to think hard thoughts of modern Germany, one sometimes looks back regretfully to the Germany of a century ago, when they were still content to resign to France the empire of the land, and to England the empire of the seas, reserving to themselves the kingdom of the clouds—before the voice of the Prussian drill-sergeant was so extensively heard in the land. And it has seemed to me that this might be as good a time as any other for giving some account of the Oberammergau Passion Play, which represents an aspect of Germany that ‘kultur’, in the Prussian sense, has too much pushed into the background during the last forty years.

The time is the more appropriate, because the origin of this particular play goes back to another of the great Pan-European struggles, which, at more or less regular intervals of a century, have resulted from the overweening ambition of some one state or dynasty. I refer to the Thirty Years’ War. Precipitated by a quarrel over a matter intrinsically so small as the succession to the Bohemian crown, it expanded its scope owing to the ambition of the Hapsburg dynasty, and the religious tension between Catholic, Lutheran, and Calvinist, and gradually drew all Europe into its vortex. During the first eleven years of the war, the Catholics were superior by land, and Bavaria, acting in the Catholic interest, profited largely at the expense of her immediate neighbour, the Calvinist Rhine Palatinate. This part of the war ended in a stalemate,—Wallenstein at the head of the Catholic armies having established a complete superiority by land, while his chief opponents, the Danes, were as unquestionably superior at sea. A separate peace having ended this unprofitable contest between the elephant and the whale, and removed Denmark from the lists, the Protestants found a new land champion in Gustavus Adolphus, whose disciplined and seasoned troops restored a situation by then almost desperate. After a period of doubtful fortune, the Swedish commander found himself strong enough to venture right across Germany, and to inflict upon Bavaria a taste of

the bitter medicine she had administered to her neighbours. He overran Bavaria with fire and sword, and, though he was finally compelled to retreat because he could not force Wallenstein to accept battle, he left behind him a Bavaria stricken by famine, and soon to be stricken by plague as well.

The plague—a visitation of the same nature as the Black Death so well known to readers of English history—ravaged the villages of Bavaria so terribly that whole families were swept away. In one village only two married couples were left alive. It was this plague-ridden condition of the country that gave birth to the idea of the passion play among the villagers of Oberammergau. For a considerable time they averted the pestilence from their village by the establishment of a strict quarantine. But one Caspar Schuchler, a day labourer of the district, who was working in the neighbouring village of Eschenlohe, in a fatal hour for his neighbours and himself, evaded the quarantine to see his wife and children. Whether he merely desired, as a good husband and father, to make certain that his wife and children had bread to eat, or whether, feeling the hand of death upon him he desired to die in the bosom of his family, the fact remains that, in this man's case, the instinctive promptings of the human heart destroyed the effect of the most necessary sanitary regulations. He was dead within two days, and the whole community was involved in the results of his evasion. In Oberammergau, for a time, the pestilence waxed so fierce, and claimed its victims in such numbers, that the living could scarce find time to bury the dead; the most strenuous endeavours failed to arrest its terrible course. At length, all curative and preventive measures having proved a complete failure, the remaining villagers assembled to discuss their desperate plight. Looking into the face of death, they remembered their sins that day, and, in token of their penitence, made a solemn vow to celebrate the removal of the pestilence by performing the Passion Play once in every ten years for ever. Whatever may have been the cause of it—a sudden shift of wind, change of weather, or what not—never since the day when Moses lifted up the brazen serpent in the wilderness had there been so rapid and signal a deliverance. From the time that the vow was made, the plague came to an end, and among the villagers the performance of the Passion Play at the stated intervals has gone on

ever since—a kind of dramatic rainbow set among the hills to commemorate the covenant goodness of God. This pious recognition of the Divine arrest of the pestilence has been interrupted on only a few occasions, hereafter to be noted; and while Mr. W. T. Stead, and other English writers on the subject are wrong in calling it “the solitary survival of what was at one time a great instrument of religious teaching,” “the last surviving relic of the religious drama of mediaeval times,” and so forth, it is certainly the one Passion Play that continues to grip the imagination of the general Christian world.

The play is a reminder of the long period when Church and Theatre were still combined in western civilization as centres of Christian culture and education, and the root of this Christian drama is to be found in the ritual of the Church. In the responses of the Roman Catholic service, we have already the elements of dramatic treatment of the Gospel, and, little by little, this dramatic element was cast loose from the service proper. This took place probably first of all in connection with the resurrection story, and Easter ritual, for, when the time came that three priests representing the three Maries, descended to the crypt of the Church, and there were met by a fourth symbolizing the angel, drama had definitely begun. In the course of time, this dramatic factor more and more emancipated itself—other scenes from Biblical history found their way to representation—it began to include secular, and humorous, even farcical matter—the action, on account of the growing number of spectators, and the increasing scruples of the clergy, was transferred from the Church to the Churchyard or the market place—the Latin text came to be accompanied by a vernacular translation, finally being superseded by the vernacular altogether.

As might be expected, the passion of Christ came to be the favourite subject for dramatic representation, and, along with this central feature, came to be included other scenes, such as: (a) The Lamentation of the Virgin, first as a monologue, then as a dialogue with St. John; (b) The Magdalene Play, representing the contrast between fallen humanity and its Divine Redeemer; (c) The Easter Play, dramatizing resurrection incidents. Plays resulting from the combination and interweaving of all these various elements flourished from the 13th to the 15th centuries, and, by the last named date, their

emancipation from the ritual of the Church was complete. There was also a more or less fixed tradition concerning the form of such plays, and a more or less fixed type of stage on which to enact them. They are to be found in considerable numbers all over central and north-western Europe, as well as in the Mediterranean countries, but perhaps in especial profusion in the knot of mountains known by the generic name of the Alps, which separates the Italian part of the Mediterranean basin from the plains of Austria, Germany and France. Such plays are found at Lucerne, Zurich, Bozen, Sterzing, and other towns of the Highlands—they exist also in important cities such as Frankfort, Heidelberg, Augsburg and the like—some of them very long and elaborate, requiring two, or three, or even seven days for their enactment. The great trade route over the Alps from Venice to Germany, leading over the Brenner pass via Trent, Bozen, and Innsbruck to Augsburg and the north-west, passed through Oberammergau, which was one of the chief halting places upon it, and from quite an early period there was a Passion Play in the village. There also accumulated a number of interesting relics, such as a 1662 text of the play, the oldest extant prototype of the present performance. Four miles out of the village, on the road to Innsbruck, lies the monastery of Ettal, which, purchased by a company and converted for some time into a brewery, has, within comparatively recent years, been bought back by the Church, and is a monastery again. The monks of Ettal furnished the original text of the present Passion Play. So far as I know, there is no clear evidence as to whether the modern version, dating from the escapade of Caspar Schuchler, is to be regarded as a continuation of the old play, or as a new departure.

This much is known, however—that, whether the play resulting from the vow of 1633 is to be regarded as a remodelling or as a substitute, the fathers of Ettal based it upon a combination of two existing dramas, both of them emanating from Augsburg. One was an Augsburg passion play of the 15th century, the other a Meistersinger play of about 1566. These were skilfully combined by the hand of a master, and the inclusion of features from other works of the kind, together with skilful additions and excisions made from time to time, has transformed the Oberammergau version by degrees into a type of practically everything outstandingly good in the mediaeval

religious drama. Of course, the play has undergone considerable transformations from one period to another of its history. During the first century of its existence it was affected by the Jesuit drama and the Italian opera—the lavish use of allegories crept in, and the same general spirit which caused the rebuilding in rococo style of the old Gothic Church at Ettal, dictated the glossing and gilding over of the passion of Christ with eighteenth century veneer. Between 1740 and 1750 A.D. Father Rossner prepared a revised version, which was adopted in various Tyrolese villages from 1760 onwards, and this version threw the Oberammergau play into its general modern form.

From the time of the Reformation, these plays rapidly perished out of the Protestant countries, and whereas, on the one hand, they survived in Switzerland far into the Reformation period, on the other hand they suffered in the regions that remained Catholic. Again and again the Oberammergau play, for example, suffered interdict. Two of these interdicts came near to ending its career for good and all. One of them befel in 1770, and on this occasion not all the efforts of the people could secure the withdrawal of the interdict till the accession of a new ruler to the Bavarian throne. Even he would only tolerate its renewal on condition of changes being made in the text, and these were duly made by Magnus Knipfelberger, again a monk of Ettal. The second obstinate and almost fatal interdict ran from 1801 to 1811, but the indefatigable efforts of a villager named Georg Lang finally procured the renewal of the play. The performance omitted in 1810 was held by special permission in 1815, with a revised text, revised verses, and fresh music written by Rochus Dedler in 1814. Dedler, who was village schoolmaster from 1799 to 1823, has set the passion to chaste and simple music entirely in keeping with the spirit of the play; and while his biographer does him more than justice in classing him with Mozart, his music is so good that it has not so far been superseded. In 1830, King Ludwig constituted himself the Maecenas of the play, which had already received the stamp of Goethe's approval, and since then the play has enjoyed a career only once interrupted, when in the war of 1870 the Christ had to step down from the cross to serve in the Bavarian artillery, and other performers had to accompany him. This interrupted season was replaced by

another specially licensed performance, I think in 1875. Next to Caspar Schuchler, the Oberammergau play owes more to Daisenberger, of whom more anon, than to any other single individual. It has been the subject of works by German, French, and English writers, who have helped to make it the popular and widely-known decennial event it has become in the last half century; and now it is a fashionable thing for believer and unbeliever alike to visit it. The official estimates bear that 200,000 people witnessed the play in 1900, and still more in 1910. What will happen in 1920 is an interesting speculation.

In spite of this enormous popularity of the play, and the multitudes who visit the village to see it, it is gratifying to record that the village itself remains, to the casual eye, quite refreshingly natural and unspoiled. It is situated in a flat highland valley towards the northern edge of the great barrier of the Alps—a valley surrounded on all sides by mountains ranging from 5,000 feet in height to the 9,000 feet of the Zugspitze a dozen miles away—overlooked immediately by the green slopes of Mündl and the precipitous crags of the Kofel, from which a huge cross looks down upon the village, and traversed by the clear and rapid stream of the Ammer, which gives to the valley the name of the “Ammergau” or Ammer District. There are two villages, Unter- and Ober-ammergau, and it is with Upper Ammergau that we are immediately concerned. There is much to be said for the approach from Innsbruck, which passes through some of the finest natural scenery in Europe; but probably the best approach is from Munich, which lies in the plain to the north. Passing on the way the beautiful Starnberger See where the mountains begin to appear like a jagged white cloud on the southern horizon, and the palace of the mad king of Bavaria peeps out across the water from the intervening forest land, this approach runs up into the mountains by the village of Unterammergau, and Oberammergau itself at length appears, but little changed since mediæval times. It is still the same cluster of picturesque painted houses, set down without plan or order around the Church, any street a fantastic vista of fronts and backs and gable ends, turning and twisting and vanishing in the most unexpected fashion. The streets are livened by the presence of peasants clad in the picturesque garb of the Tyrolese moun-

taineer, bronzed and laughing, but at the hour of Angelus every face grows reverent and serious, and every head remains bowed and bare till the surrounding hills have given back the last faint echo of the bell. They are a simple and kindly people. It was my fortune to be a member of the first company of strangers who came to see the play in 1910, and it may have been that among other things that made our welcome so warm and kindly. If we had been long-lost brothers, or prodigal sons returning from a prolonged diet of husks, we could not have been more warmly received nor more kindly treated.

Oberammergau is inhabited by a sturdy, independent class of people, whose mountain-barriers have so long shut them off from close contact with distant governments that they have developed among themselves a democratic community of the simplest and most thorough sort. The burgomaster is elected, and the government is in the hands of the householders. Nearly every man is a landholder, the richest holdings running as high as sixty acres, and the poorest holder having at least three. In addition, all have the right of pasturage on the Alp. "Three acres and a cow" is no mere catchword in Oberammergau. In this village of 1,600 people, there are from 600 to 700 cows, and you will meet few pleasanter sights in all your wanderings than the long procession of cows tinkling through the village morning and evening on their way to pasture or to milking. Horses and goats are belled also; but the cows throw them into the background of consciousness by sheer weight of numbers and insistence of sound. The village is an artistic centre whence wood-carving and pottery work of no mean merit find their way over all the world. But, after all, the main interest of the village is centred in the play, round which all other village activities naturally group themselves. And here it is that we see another side to the life of these simple mountain peasants and villagers—their characteristically German power of organization or capability of being organized. The whole caste of the Passion Play is made up of natives of Oberammergau; and the task of allotting the parts is assigned to a committee of 19. Six of these, including the burgomaster and the priest, sit *ex officio*, and the municipal voters elect the remaining 13. For a whole year preceding the play this committee meets at least once a week. Subcommittees are ap-

pointed to deal with subsidiary details, e.g. the Press Committee, which has charge of the publicity department, printing, photographs and the like. The large theatre is exclusively used for the presentation of the great play; but in a smaller theatre opposite the town hall—a survival of the time when practically every village possessed and used its *Spielhaus*—miracle and sacred plays are constantly being performed. This gives the villagers the needed practice, and at the same time helps the Selection Committee in its decisions. The selection for the most important rôles in the Passion Play is made by a bare majority, and, for the last 100 years, has invariably been announced on the 5th December preceding the play year. The chorus, however, and the crowds are selected before then, and have a year's continuous practice before the play is given. There is a general tendency for the same part to be played over again by the same player, even after the ten-year interval. Christus Mayr represented Christ in 1870, 1880 and 1890, in 1900 he spoke the prologues, and he died Burgomaster in 1903. Johann Lang, Burgomaster and Director of the Play, died in 1900, having played Caiaphas no fewer than five times. Among the veteran players of 1910 may be named Johann Zwink, who took the part of John in 1870 and 1880, and whose representation of Judas in 1890, 1900 and 1910 was one of the features of the play. This man struck me as the finest actor, *quâ* actor, of all the caste in 1910. He looked the part, and seemed to live in it, so that he moved the whole audience to visible emotion; in fact, on a former occasion, in the remarkable scene portraying the remorse and suicide of Judas, he actually hanged himself and had to be cut down after the curtain had fallen. His daughter in 1910 acted the part of the Virgin—this part, like that of the Magdalene, is always played by a young girl, and therefore never taken twice by the same person. Anton Lang, the potter, the Christus of 1900, again filled the part in 1910; it will suffice to say that his splendid face, his commanding figure, and simple acting did no disgrace to the outstanding rôle for which he was cast. The only important part filled by an actor entirely without experience in the great play was that of St. John, taken by Sebastian Bierling, a boy of 19. His mere beauty of feature would have carried off the part with credit, even if his acting and speaking had been poor, which they were not.

The play is given in the big theatre, which stands in a meadow near the station. The expense of rebuilding it in its present form was 200,000*m.* defrayed out of the proceeds of the 1900 performances. Its framework consists of six great iron arches, each 65 feet in height, and 140 feet in span. The walls and roof which rest on these are of wood covered with canvas and are painted all over with appropriate scenes and figures. Each year before the play the theatre is entirely repainted, the scenery as well. This latter task takes a full year. The interior is seated for 4,000, and the cheapest seats are in front—the point of this arrangement being that from the front it is difficult to see into the centre stage, and that, as the stage itself is open to the weather, the forward seats are apt to be uncomfortable on any inclement day. The stage runs the whole breadth of the theatre; at the back of it on one side is seen the house of Pilate, and on the other the house of the High Priest each with a balcony. From the middle of the back, a small central stage recedes, which can be curtained off, and between it and the houses mentioned run two streets. The form of the stage (which will recall both classical and mediaeval arrangements), permits of the most elaborate scenes being enacted, and effects a great saving of time between the various acts and tableaux. The dresses, which are all made in the village, entail a considerable amount of labour and expense. No actor makes up, and for some time before the play the actors become Nazirites, their long hair and flowing beards adding much to the picturesqueness of the village. While we are dealing with this subject of the theatre, mention must not be omitted of the Wohnungs-Bureau, a committee which makes the arrangements for the accommodation of visitors. The manner in which it takes into and gets out of a village of 1,600 inhabitants, strangers to the number of 10,000 weekly, without hitch or discomfort or trouble of any kind is a marvel of organization. To avoid confusion, all the houses are numbered consecutively, as though they stood in one long street, and the number of beds in the village is exactly accommodated to the number of seats in the theatre, so that everyone who secures sleeping quarters in the village secures also a seat for the play, the position of the seat varying exactly as the amount paid for a room. The boarding arrangements are excellent, and the visitor finds everything arranged for his comfort. Had the

villagers not the forethought to work out this automatic correspondence between sleeping accommodation and theatre seats one can see how much confusion and disappointment would result; but, as it is, all goes smoothly, and the day-trippers who come by special train from Munich on the off-chance of securing a seat are aware that they must trust to luck.

Coming now to the text of the play, and the manner of its presentation. I have said already that, next to Caspar Schuchler, it owes more to Daisenberger than anyone else. Daisenberger, a good and pious man, was village priest for 35 years about the middle of last century, and he took it upon himself to reconstruct the entire text of the play. As he himself has said, "I undertook the production of the play for the love of my Divine Redeemer, and with only one object in view, the edification of the Christian world." Like everything else of the kind, the play in places had run to farce of the broadest kind, and the same spirit which made Englishmen find uproarious amusement in *Lords of Misrule*, and Scotsmen in the antics of *Abbots of Unreason*, moved the peasants of the Ammergau to shrieks of hilarity as the devil fell upon the dead carcase of Judas, and extracted strings of sausages from the prostrate corpse of the betrayer. All this Daisenberger expunged, and from his hands emerged the seemly and dignified play we now have. To him also is due the idea of showing before each act a tableau or tableaux representing some scene from Old Testament or Apocrypha which typifies the New Testament incident about to be enacted, so that the Passion should be made to rest, as he says, "upon the basis of the entire Scriptures." The music of Dedler is sung during these tableaux by a chorus of 40, sustained by an orchestra of 80 performers. The play consists of 16 acts, some of which run to three or four scenes, and in all there are 22 tableaux. The work of the chorus occupies roughly one half the time taken for the whole performance, and that lasts from 8 to 12 in the forenoon, and 2 to 6 in the afternoon. Because of the weakness of the flesh, lunch-baskets are permitted in the theatre, but for the mortification of the body and the danger of fire, smoking is forbidden in the building and within 30 yards of it.

To take a single act and work it out.—The first act deals with the Triumphal Entry. The prologue is spoken loudly and

clearly, and the chorus then moves in from opposite sides. To their appropriate music, the curtain in the centre rises to the tinkling of a little bell; and the chorus falls back on either side, to disclose the tableau of the Fall—Adam and Eve being cast out of Eden. The second tableau of the Adoration of the Cross comes next. A little later, their song finished, the chorus file off to right and left, and the play proper begins. The curtain rises again disclosing the merchants busy plying their trade in the court of the Temple. By the street on the left enter the priests and their following, and down the street on the other side, with palm-branches and singing come crowds escorting Jesus. He is seated upon a little ass, led by John. In the second scene Jesus comes to a stand before the traffickers, vents his indignation upon them, and finally drives them out with a whip. Thereupon he finds himself the idol of the crowd, who are rebuked by the priests for their stupidity in following him. He then departs. In the third scene the priests and Pharisees set an orator to work, and he, being unopposed, speedily swings the fickle mob round to his point of view. In the fourth scene, the traders appear again, to add their clamour to the general outcry against Jesus. Before the second act (the conspiracy in the Sanhedrin to get rid of Jesus) the tableau takes place of the brothers of Joseph conspiring to sell him, preceded by the usual prologue, and accompanied, as usual, by the chorus. I cannot, of course, go in detail into the question of the text; but, as will be evident when I say that the German text occupies some 140 pages of ordinary book size, it is a somewhat free expansion of the Biblical account of passion-week.

Yet, however much any particular scene may be drawn out, and added to, it never occurs to the spectator to question whether these additions are in the spirit of the original—one never doubts that. Take for example the working out of the entire Judas theme. The Scribes and Pharisees get the merchants to lay a complaint before the Sanhedrin, which, after discussion, resolves to offer a reward for the apprehension of Jesus. Meantime He and His disciples have gone to Bethany. There Lazarus, Martha, Mary (identified with Mary Magdalene), the Virgin, Jesus and the twelve are all brought together in the house of Simon. Into this scene is imported the saying of Peter given in the New Testament on the Mount of Trans-

figuration, "It is good for us to be here," etc. Judas, whose common purse is almost empty, becomes very angry at the waste of the jar of ointment and says so, earning a rebuke from Jesus. Irritated by this, he is frightened in addition by Jesus' description of the coming arrest and crucifixion. After a pathetic leave-taking at Bethany, Jesus and the band set out for Jerusalem, and, as they go, the mood of Judas sinks lower and lower, till all the courage and enthusiasm have oozed out of him. Drawing apart from the rest, he moodily weighs his chances, and ruefully regards his nearly empty bag, his greed coming clearly to view in his monologue. At this psychological moment, the traders come upon him, and finding him in the proper frame of mind, prevail upon him to earn the Sanhedrin's reward by showing where his master can be captured without noise or tumult. He argues with himself thus: "If Jesus be an impostor, I am well quit of him, and rich into the bargain—if not, this will bring matters to a head, and precipitate the Coming of the Kingdom. For, in the latter case, my master must resist the violence of his enemies, and as for me" (I quote now from the text) "I will cast me down repentant at his feet, for he is good. Never have I seen him cast away the penitent." Having thus salved his conscience, he appears before the Sanhedrin, makes his promise, and takes his reward: the same night he betrays to the enemies of Jesus his Master's retreat in Gethsemane, and the die is cast. His remorse is powerfully wrought out in one scene where he forces his way into a meeting of the Sanhedrin, and after failing to turn them from their purpose of having Jesus put to death, flings the thirty pieces of silver on the floor amongst them with his curse, and rushes out distraught; and, in another, where he indulges in a long soliloquy, finally dragging off his girdle and hanging himself on a tree near by.

Or take the scene of Peter's denial. His fears are played upon by a conversation among the people gathered by the fire, who suggest first of all that probably the Nazarene's followers will be seized next, and freely express their opinion that at least the fellow who assaulted the servant of the high priest should be caught and punished. Peter, overhearing all this, is in such a state of terror and unrest before the girl speaks to him at all, that he falls quite naturally into the denial of his master. Thus in his case, as in that of Judas, the incidents

and speeches added to the original are psychologically in keeping—they do not violate either unity or probability.

Besides this amplification of Biblical scenes, and filling out of Biblical characters, which, however, is never overdone nor in bad taste, we have the adoption into the play of legends such as that of St. Veronica. But the whole play hangs together, and it is Daisenberger's chief claim to grateful remembrance that he should have taken up a play still full of broad farce, and in many ways ridiculous, and, by judicious addition and excision, have turned it into the dignified artistic unity it now is. Though the author has never been canonized, Mr. W. T. Stead is guilty of a pardonable exaggeration when he calls the play the Gospel according to St. Daisenberger. It is almost worthy of its transcendent subject. It is simple, reverent, and dignified throughout. Some scenes in it stand out in the memory with cameo-like distinctness. The scene in the Temple Court, when, on a glorious morning of May, the liberated doves flew out into the sunlight, and sat preening themselves on the stage-roof in the sheer joy of their freedom, against a perfect background of blue sky and sunlit snow-peaks. Or the scene of the leave-taking at Bethany, where the simplicity of the acting was its greatest perfection, and the whole crowded audience was visibly and genuinely moved. Or the terrible scene when Judas sent the thirty pieces of silver ringing with his curse through the hall of the Sanhedrin. A dozen such scenes, delicate or rugged, but always completely definite, live perfectly clear-cut in the mind. But greater than any or all of such impressions was the impression of the play as a whole.

May I say at once that the impression was wholly reverent; and, though many good Presbyterians, and others of non-Roman persuasion, have, in my hearing, expressed their doubt as to the wisdom of producing or witnessing such a performance, have even denounced it 'a priori' as necessarily blasphemous, I have never, with a single negligible exception, met anyone, who has seen the play, that persisted in such an opinion. If the acting has any fault at all, it is the beautiful fault of entire simplicity—there is a complete absence of barnstorming, or the tricks of half-trained professionalism; the people do this thing well because for centuries they have lived in the spirit of it. I will venture so far as to say that, because

of this, they do it better than any other people could. I could conceive of this play being put on by the star professional actors of two continents, and being ruined by them. Away from its own ecclesiastical and social setting, and from its cradle among the Bavarian hills, it would languish and fail; but there it is almost perfect. One minor criticism that occurred to me was that the action might better have ceased with the crucifixion; the Resurrection act, and the Ascension tableau jarred on me, and on others, as in some curious way an anti-climax. And the music was not so perfect as it might have been. Dedler's simple music suffers in being set for an orchestra of 80, and in the open air, to which the performers are exposed, the brass instruments, especially in imperfect weather, are apt to overbalance the rest. Besides, it is difficult to find in a village of the size a choir and orchestra of the combined strength of 120, all of whom possess the requisite technical skill. With the acting it is different. They are born actors, they have centuries of tradition behind them, they live their play year in and year out, and they have the intuition of reverence in the doing of sacred things. Any irreverence I saw was confined to the audience. Americans sat behind me in the playhouse who commented audibly and nasally upon the performance—one man, apparently mighty in the Scriptures, explaining every scene as it went along. During the tense approach of Judas to the betrayal, this man struck a hideously jarring note with the luminous comment, "Naow, see! he's goin' to kiss 'im"; and the rising of the curtain upon a fine representation of Leonardo da Vinci's last supper was saluted with a chorus of "Oh, my!" Doubtless our American friends were not alone in this indefensible and tasteless breach of reverence and good manners. We dealt with these interruptions so faithfully at the 12 o'clock interval that they left us in peace during the afternoon. As for the complete reverence of the performers themselves, I can offer no better testimony than this, that the impression they made as players was in no wise lessened when we found them between the performances acting as waiters and servants in the hotels, nor by a mid-week visit to the village when the crowd was gone, when the mask that is no mask was dropped, when Annas and Joseph of Arimathea could be seen in their everyday garb fraternizing over a glass of beer in a wayside café, and the Christus, the

Virgin, and John, and Judas might be visited in their own houses.

One may ask, by way of reasonable conclusion to such a paper as this—apart altogether from any impression the play makes upon individuals—“What significance has it for us, and what useful function does it fulfil?”

First of all, it is significant as a survival of mediaeval art, though not, as some writers assert, the sole survival, for there are others. There has been a Passion Play annually at Selzach in Switzerland for over twenty years; but this play was suggested by, and is largely based upon, the Oberammergau one. There is another at Hôritz in Bohemia which is older, but of which I know nothing beyond that it exists. One which still exists at Vorder-Thiersee, in the Tyrol, has a curious history. Vorder-Thiersee and Oberandorf lie close together on the Bavarian-Tyrolese border, the former in the Tyrol, the latter in Bavaria. There was an old play in existence at Oberandorf which fell under the Bavarian interdict of 1801-11, and had to cease. At this time a severe cattle plague was raging in the border district, and the people of Oberandorf did their utmost to secure the removal of the embargo on their play, but without success. The people of Vorder-Thiersee, feeling that some such pious observance as the play might produce for the beasts of their district the deliverance that had been wrought for men at Oberammergau, bought over the rights of the play and the play itself from their neighbours across the border, and have used them ever since. Beginning in 1803, they gave the play annually for a time, but the interval between performances gradually lengthened till in 1855 it became a decennial event, and has so continued. Since 1873, when the text was revised, judging from an article in the *Century Magazine*, the play has become a curiously exact parallel to the Oberammergau one. To such an extent is this the case that it is difficult to avoid the suspicion of borrowing. So strange is the parallel, even in matters of pure accident, that in 1895 John was played by a boy of 19, and Judas was the father of the Virgin. To complete the coincidence, Vorder-Thiersee and Oberammergau are about equidistant from Munich. Up to the end of last century and doubtless since, there is abundant evidence of the existence of Passion Plays in Spain and Italy. In the Val d'Arran, on the Arragonese frontier, there is one in which Christ ap-

pears fainting under the burden of his cross, and is set upon by the populace and beaten in good earnest. In Italy, in many cases, these plays have degenerated into ludicrous puppet-shows, which degrade the Passion story to the level of a Punch and Judy show. We need dwell no longer on these survivals; they deprive the Oberammergau play of the chill distinction of being sole survivor; but they do not share its widespread influence, and it has the distinction of being the only Passion Play left which appeals on any large scale to the popular imagination.

Moreover, it brings before us, in a fashion so realistic that nothing else can quite equal it, the tremendous miracle which Christianity wrought in the transforming of the western world. The story of Christ's cross and passion, his resurrection and ascension, has been a familiar tale for 1900 years, and though the Church has always insisted on his Humanity, and his essential likeness to the children of men, yet we cannot but view him in the light of the labours of men like Origen and Athanasius, Augustine, Luther and Calvin. Though we know he was a despised Nazarene, a Galilean carpenter, an outlaw rejected and persecuted by the authorities of his time and nation, and that he finally died the most disgraceful death possible to a malefactor, and though we try to imagine him thus, we find that we cannot, in our imagination, quite divest him of the glory of his Divinity. The metaphysics, the theology, the worship and the adoration of nineteen centuries come inevitably between us and the human figure of the Master as he lived among men, and, throwing back into the picture of his life on earth the halo that subsequent ages have cast about him, we see him, not so much a man as the Divine glory tabernacled in human flesh, and so we lose a true sense of the stupendous miracle wrought by his life, and teaching, and death. What I have said of the Master applies also in a lesser degree to the disciples. But here, in the Passion Play, we do see the Galilean working man and his company of simple villagers and fishermen, and it is great gain. They are idealized to some extent—it could hardly be otherwise; but we see them as they actually were, more clearly through this medium than we could through any other, and having seen them buffeted, persecuted, the prey of human weaknesses, and the scorn of the populace, we reach a new conception of the great wonder of Christianity,

wherein God used the weak things of the world to confound the strong.

Again, the play gives us some notion of the methods used by the Catholic Church to keep this mighty transformation alive in the popular mind. When the Reformation in general, but Calvinism in especial, revolted against the abuses of the Roman Church, they naturally sought another extreme, and lost much that was useful in repudiating much that was injurious. We are too shy, in Calvinistic lands generally, of a certain fine sensationalism—I do not use the word in its hackneyed sense—of which the Catholics well know how to make use. They know how to sensationalize the Christian religion, to make it vivid and realistic and living in the eyes of their people; and, in losing this, we have lost what not even John McNeill nor Billy Sunday nor the methods of the Salvation Army can do more than parody. We can mediate our Christian teaching—none better—to the ear in eloquent sermon, dignified prayer, fine music, and the splendid literature of the Bible, though even of some of these many Protestants are distrustful; but we never think of presenting Christianity to the eye as the Catholics, for example, do in their Christmas services. I am not arguing the merits or demerits of the question; all I wish to bring out is that here we discard something that Catholics find useful, and this I will say, that if we can use plastic and pictorial art, the arts of music and speech and literature to buttress our Christian faith, why should we discard dramatic art entirely? Please do not misunderstand me. I do not think that the vulgarly commercialized drama which finds for itself appropriate expression in musical comedy, problem plays, picture shows and polite vaudeville so called, could ever touch the passion of Jesus Christ without defiling it. I do not think, as I have already said, that even the finest professional actors could do this thing; it is only among God-fearing, simple, homely villagers such as the people of Oberammergau, with the same sort of tradition behind them, that such a thing could even be contemplated. And, when we consider the technical difficulties of individual acting, or of the massing and grouping and handling of the crowds of 300 or 400 which sometimes appear on the stage, how wonderfully well, on the whole, it is done! Can you imagine any Protestant village of 1,600 people taking up a play which requires over

400 men, 50 women, and 200 children as actors, which has 125 speaking parts, which needs a chorus of 40, and an orchestra of 80, which calls for the preparation of a vast amount of dresses and scenery, which presents a very difficult problem in business and stage managing, and which deals with the central theme of all history, and doing it justice? If such a village could be found, do you think it would remain unspoiled? Is it to the credit of Protestantism that you cannot imagine this?

And it must be said that, in Oberammergau, the people are still unspoiled. In spite of the popularity of the play which brings them an invasion of 200,000 strangers every year the play takes place, in spite of the fact that in the years between the performances many of the villagers take situations abroad in order to gain the linguistic equipment necessary for dealing with the cosmopolitan and polyglot crowd which visits the village on these occasions, even if the member of chorus who served in our hotel had been three years in York, and spoke almost perfect English, and even if Sebastian Bierling, her cousin, who played St. John, had been to school in Winnipeg, and these were but two out of many; yet the spirit of the place never seems to be shaken from them, and contact for years with outside commercialism does not canker their simple, kindly, reverent souls. To them, the visitor from outside is not so much a tourist to be fleeced as a friend to be welcomed. We were received like children home for a visit; and the ability to talk a little German was an unfailing passport to their good graces. In spite of all that may be said to the contrary, and has been said in print and in private, I do not think the charge can be substantiated that the village is commercialized. What are the facts? After all expenses are paid—and the expenses of a piece involving 700 actors are necessarily heavy—one-third of the surplus goes to the community, and two-thirds to the players. The community's share—which in 1900 came to £16,000—is spent on municipal work. For example, the bed of the Ammer has been deepened and straightened, thus doing away to some extent with the floods which used to devastate the village in the spring. The loss in picturesqueness is more than compensated by the gain in public safety. Money has also been spent on rebuilding the theatre, on the hospital, on the school, the roads, and so forth. The players themselves, during the period they spend in rehearsal, receive a weekly wage equivalent to what they would have earned at their trade, and

all this is a charge upon subsequent profits. For purposes of profit-sharing, they are divided into classes, according to the relative importance of their parts, and each member of each class receives the same amount. Anton Lang, as a member of the first class, received £70 in 1900. To make £70 once in ten years is a poor commercial return for all the labour necessary to do justice to the part of Christus; £7 a year for the principal actor surely relieves the play from any charge of financial speculation, and shows it for what it is—a labour of love. The village enjoys its brief four months' season once in ten years; and my experience was that quite good board and lodging could be obtained in the respectable hotels for 10m.—less than two and one-half dollars—a day. A people forced to submit year by year to the summer charges of the Trossachs or of the Rocky Mountain Hotels can scarcely cast a stone at the commercialism of these villagers. They have one chance in ten years to grind the face of the heretic and unbeliever, but they do not seize it. The score of the music had not up to 1910 been published for sale, though such a step might reasonably be expected to yield large profits. It may be that the persistent attentions of outsiders as displayed in the cinematograph reproduction of the play which can now be witnessed and in other things of that sort, will spoil the people in the end; but up to 1910 it was not so.

The village and the people and the play yet remain as they have been—unspoiled, kindly, homely, reverent—a notable survival of mediaevalism, and the better methods of the Roman Church; they display very vividly the suffering human Christ, and his disciples as yet unbeatified, and so they serve to make us understand the miracle of Christ's transformation of the world. They display in its finest form the secret of the sensationalism used by the Roman Church to keep the sense of this miracle alive. They affect us, when we go to see them, like a snatch of some old folk-song, like the sound of distant evening bells over placid reaches of water, like the sight of torn clouds, and the sound of rushing winds among snow-peaks—pathos and passion, lyric and tragedy are in them.

Here, we may feel in these days, is a manifestation of a Germany too long unfamiliar, which, throttled now by the soulless efficiency of the Prussian machine, will rise again into new fullness of life, and bring that people once more into the community of Christian civilization.

JOHN DALL.

NATURAL MEASUREMENT OF TIME.

THE YEAR AND ITS LIMITATIONS.

In considering the length and limitations of the year it becomes necessary that we at first define the word *year* so as to know exactly what is meant when we speak of it.

A year is the length of time taken by the earth to make one revolution about the sun, starting from some indicated point in its orbit, and returning to the same point again. That the point should be fixed in space is not an element of the definition, for it is doubtful if we can know anything about absolute fixity in space. It is enough that the point should be of sufficient prominence in the theory of planetary motion to make it a point of importance.

Astronomers define three different years, or rather three kinds of year depending upon the particular points taken. And over and above these there is the calendar or practical or civil year, that is, the year used in and for the practical purposes of life. This last, although derived from one of the defined years, is variable in length and is not strictly definable.

The three years defined are not of equal importance from the point of view here set forth, and the first two that we shall consider are of very little importance except to the astronomer.

Anomalistic Year.—On page 82 in conjunction with the diagram, we have an explanation of what is meant by the earth being in perihelion at *a* and in aphelion at *z*. Either of these points may be taken as a point for defining a year.

Now the line joining the points *a* and *z* passes through the sun at *S* and is known as the line of apsides or the *apsis* line. The angle between the direction of this line and that of the sun at any time is called the sun's *anomaly* at that time. Thus, with the earth at *a* or in perihelion the sun's anomaly is zero, and with the sun at *b* its anomaly is the angle *bSa*, etc.

Hence the anomalistic year is the length of time taken by the earth to go from the perihelion around to the perihelion again; or, for the sun, apparently, to go from any given anomaly to the same anomaly again. The perihelion point is taken as the point of reference, and the anomalistic year begins when the earth is in perihelion, which in the present year of our Lord is not far from the first of January.

The sun's angular diameter, as seen from earth, is a function of the sun's distance from the earth, and as this angular diameter is easily measured, the variations in the

sun's distance are easily determined. So it is quite a possible and practicable operation to find when the sun is nearest the earth, or when the earth is in perihelion, and accordingly when the anomalistic year begins.

In this way it has been discovered that the perihelion point *a* is not a fixed point in relation to the general positions of the stars, but that the apsis line has a slow progressive movement, that is, a rotation in the same direction as that in which the earth moves in its orbit.

In this manner the length of the anomalistic year has been found to be 365.2595 days.

The Siderial Year. The siderial year has no intimate connection with the siderial day or with siderial time, and it is usually defined with a star as a fixed point—thus a siderial year is the length of time required by the sun, in its apparent annual motion about the earth, to go from a given star around to the same star again.

But, as pointed out before, the stars instead of being at rest, have each its proper motion so that siderial years determined from a number of different stars might not be altogether consistent with one another. This difficulty is to be overcome by either finding a star which is absolutely at rest—a difficult if not an impossible undertaking—or finding the proper motion of some individual star, and then allowing for this motion when determining through this star the length of the siderial year.

To give some idea as to how this may be done, let us suppose that there are two stars affected with the same, or about the same, linear proper motion, and that one of these stars is ten times as distant as the other. Then the angular motion of the near star would be ten times as great as that of the distant one, so that we have the proper motion of the near star to within one-tenth of its true value. And as all these motions are exceedingly small when taken for a single year, and as such observations can be repeated at liberty with stars very much more distant than our supposed one, the proper motions of all the nearer and brighter stars may be determined to within very close limits. The length of the siderial year is thus found to be 365.2567 days, which is 0.0028 days, or about 4 minutes shorter than the anomalistic year.

It may be said in passing that the only use of the sidereal year is to act as a basal period of time in fixing quantitatively the progression of the perihelion and the retrogression of the equinox, or, as it is generally called, the precession of the equinox.

The Equinoctial or Tropical Year. As its name indicates, this year has a relation to the equinoxes, and the point of reference here taken, in order to fix the length of the year, is the vernal equinox, or the first point of Aries, see page 94). So that the Tropical year may be defined as the time taken by the sun, in its apparent revolution about the earth, to pass from the vernal equinox around to the vernal equinox again.

This is the period of time popularly known as the *year*, and its importance is manifest in all our seasonal relations. And whatever may take place upon this earth—whether there be peace or war, famine or bounteous plenty, happiness or misery—as long as the sun continues to shine and the earth to move in its wonted course, the orderly procession of the seasons will never fail.

Long before man came upon the scene, the great continents, with the smaller islands of the seas, have been cheered by the revivifying influence of spring, have basked in the warmth of the growing summer season, have yielded their fruits to the brown and ripening autumn, and have in due time put on the winding sheet of winter. And these things will endure even though man and all his works should perish. In very early times, when possessed of the crudest of astronomical ideas, and when such things as perihelia and anomalies and sidereal years were unknown, man found it necessary, in some way, to connect the length of his year with the orderly return of seed-time and harvest, for these latter things are mainly dependent upon the varying positions of the sun in relation to the equinoxes. That is to say that he found it necessary to establish in some way, however crude, an approximation to the length of the tropical year.

The problem of finding the true length of this year has been a problem of the ages, and although attempts at its solution must have begun with almost the beginning of man's intelligence, its complete solution has been attained to in only comparatively modern times.

It is sufficient to say here that this complete solution has shown that, at the present time, the length of the equinoctial or tropical year is 365.2422 days, and that it is thus 20 minutes and 53 seconds shorter than the anomalistic year. Moreover, it is highly probable that this length may vary to the extent of a second or so in a century.

Having stated the problem of the length of the tropical year and given the results obtained, we next go on to consider the means employed in the solution.

THE YEAR.

Although the tropical year and the seasons are so intimately connected together as not to be separated, yet it is not practicable to determine the length of the year, or its beginning, or its end, by any reasonable amount of observation upon the course of the seasons. The phenomenon of "winter lingering in the lap of spring" and others of like kind are too numerous to allow of any exact fixing of the beginning of a season by means of the weather or anything depending thereon; and we are finally compelled to resort to the motions of the sun in order to get definite results.

Thus, the mean sun (p. 84), in its apparent annual course about the earth, passes through the equinoxes and the solstices—the equinoxes being the points where the ecliptic crosses the celestial equator, and the solstices being the points in the ecliptic farthest distant from the equator, one being north and the other south of the equator.

Then, in the northern hemisphere, *spring* begins when the centre of the mean sun is at the first point of Aries, or the vernal equinox. About three months after this, *summer* begins, the centre of the mean sun having arrived at the summer, or northern, solstice. This is the first point of the constellation *Cancer* in the conventional zodiac.

After another three months the centre of the mean sun arrives at the autumnal equinox, and the season of *autumn* commences. This is the first point in the constellation *Libra*. Going on for another three months the centre of the mean sun arrives at the winter solstice, or the first point of the constellation *Capricornus*, in the conventional zodiac, and *winter* begins. In another three months the sun returns to the vernal equinox, and the year is completed.

Thus, the seasons and their limitations are absolutely defined by the motion of the sun, and these definitions are exact, no matter what may be the character of the prevailing weather in any season or in any part of it. And all agricultural and horticultural operations are naturally carried out in dependence upon the seasons as now defined.

To observe and measure the apparent motion of the sun as for six months it moves from the summer to the winter solstice, and for six months moves in the opposite direction, is easy enough for modern astronomers armed with all necessary telescopes, measuring instruments of all kinds, and other paraphernalia for the purpose.

But it was different with the pioneer of four or five thousand years ago, when astronomy was in its infancy, when the only telescope employed was built upon the ground and had to serve the purpose of both observatory and temple, and when the sundial and the clepsydra furnished the only means of counting the smaller intervals of time. And yet these pioneers succeeded, in a very ingenious manner, in keeping count of their years and confining them to the four seasons.

Even a superficial observer must notice that in the northern hemisphere—and where not necessary to do otherwise we shall confine ourselves to this hemisphere—the sun comes northward in the summer time, and moves away to the south in winter, the whole extent of the excursion being about 47° , or more exactly $23^\circ 27'$ on each side of the equator. And a little careful observation will show that, with our present division of the year into months, the sun rises and sets farthest north of the equator about June 23rd, and farthest south of the equator about December 21st.

And as the seasons and the length of the tropical year are determined by these solar excursions, we have, in them, a proper and convenient index of the passing years.

These results are illustrated in the accompanying diagram where the horizontal straight line denotes the eastern horizon as seen over a level plain.



The positions of the sun, at rising, are shown by small circles for about the 21st day of each month, from December to June, with the sun going northwards, and from June to December, southward, the northward motion being represented above the line and the southward motion below it.

Now let *A* be the point in the horizon at which the sun rises on some particular day. Then, if the year consisted of a whole number of days, one year afterwards the sun would rise exactly at the point *A* again. But because the year is not a whole number of days, the sun would not rise exactly at *A* when the year came around. But we now know that the error in one year would be slightly less than one-fourth of the sun's daily motion, and that by the accumulation of errors the discrepancy would tend to right itself after a series of years.

Thus, by counting the days from that upon which the sun rose at *A* when going northward, to that in which the sun rose nearest to *A* when going northward the next time, we would get the length of the tropical year to the nearest whole number of days. The error would correct itself by adding an additional day to the year when required, and it is therefore not accumulative.

This will be considered more fully under the calendar or civil year.

This method, however, although connecting the seasons with the year in perpetuity, could not give us the true length of the year unless by averaging a very large number of the yearly results so obtained.

Observations of this kind could readily be carried on by setting a number of stakes on an extended plain, or by otherwise permanently marking out a line, directed to *A*, or to any practicable point on the eastern horizon, if the sun's rising is to be observed, and to the western horizon if the setting is to be observed.

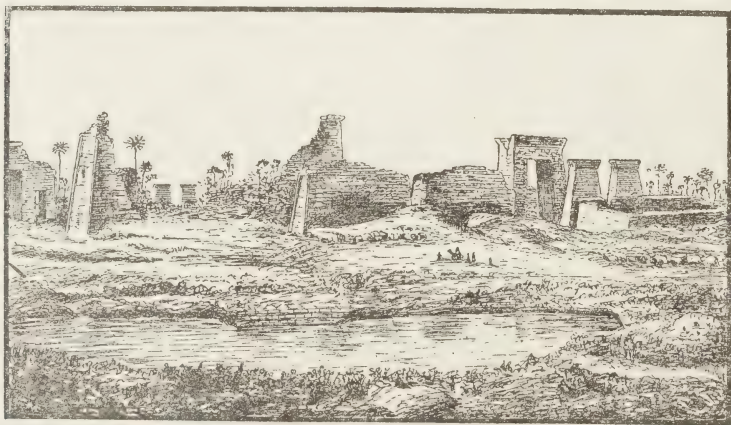
The ancient Egyptians, among other early people, employed this method of getting at the length of the year and of connecting the year with the seasons. But to the ancient Egyptians the sun, the moon, and many of the bright and significant stars, were gods, or in a way represented gods. Thus it appears on good authority that the rising sun, the bringer in of the morning and the light, and the extinguisher of the stars, was Horus. The sun in his strength and brightness,

when high in the heavens, or at noon, was the great god Ra; and the setting sun, when leaving the world of the living and going down to cheer for a while the underworld of the dead, was Osiris. So that to these people astronomy and religion were, to a great extent, one and the same thing, and the priest was at the same time the administrator of all religious ceremonies and the astronomer.

And instead of depending on anything so frail and commonplace as stakes to line out the position of the rising or the setting sun, they built huge and wonderfully complex temples with long and narrow axes directed to some desirable point of the horizon, and through which the sun's rays might pass into the holy of holies, at rising or at setting, on certain days only as determined by the particular orientation of the temple.

Of these grand old temples, the work of a giant-nation of builders, little now remains but masses of ruins, their usefulness gone and their religious ceremonies living only in ancient history, while a few of their titanic monoliths have been scattered throughout the world to form interesting ornaments for strange cities.

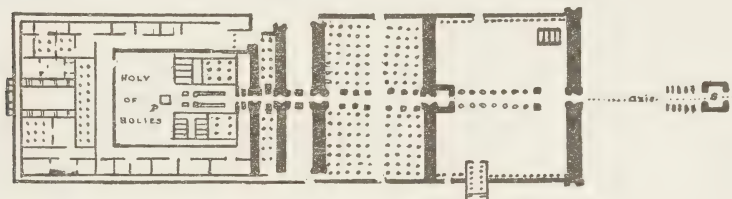
The following illustration is a perspective view of the temple of Amen-Ra at Karnak, in upper Egypt, which, when in its glory, was probably the greatest structure ever reared by the hands of man, and which now forms the most extensive ruin in the world.



The total length of this temple was about 1,600 feet, and it covered an area fully twice as great as that of St. Peter's at

Rome. It was oriented to the setting sun at the summer solstice, presumably because the western horizon offered the better view.

The next illustration is of a plan of the temple, in which the open axis, throttled down by numerous narrow passages between pylons and columns so as to prevent the passing of extraneous rays, is clearly shown. At *S* is a double row of sphinxes, and at the proper time the rays from the setting sun—which in Egypt shines from a cloudless and mistless sky—threaded their way through the long narrow axis and fell upon the altar *P* in the holy of holies, and indicated to the attending priest that the sun had arrived at the summer solstice.



In regard to the method of accommodating the year to the seasons as now described, it may be worth while to make a few remarks.

The apparent movement of the sun from north to south and back again is harmonic in character, so that it is slowest, coming to rest for a moment in fact, at the solstices, and greatest at the equinoxes. As a consequence the sun's rays, when at a solstice, might penetrate into the holy of holies for several days in succession, while they could not do so for more than a couple of days, at most, in a temple oriented to the equinox.

It appears then that temples oriented to a solstice were much more uncertain in their determination of the particular day of the solstice, than one oriented to the equinox would be in regard to the particular day of the equinox.

Why the great temple of Karnak was oriented to a solstice we do not know; possibly on account of the lay of the country, or for some reason connected with the religion of the people. Some temples are known to have been oriented to the equinox, as was Solomon's temple, according to Josephus.

However, either case would give results sufficiently close for agricultural and sacrificial purposes, and, as said before,

the error, whatever it may be in any particular year, cannot amount to over a couple or three days at most, and it is not accumulative.

Although the orientation of a temple to a solstice may have served its intended purpose for some centuries after its builders had passed away, yet owing to the slow secular change by which the obliquity of the ecliptic is decreasing in amount, the extent of the sun's annual oscillation was, and still is, growing less from century to century, and after a few thousand years the sun's rays would no longer be able to penetrate the axis of the temple, which would therefore lose its astronomical value.

Temples oriented to the equinox would undergo no change in their astronomical value, and those to any other point might be only slightly affected.

So that whatever may have been the reason for orientation to a solstice, it was the worst of all orientations that could be made, and this for two reasons, that it was more uncertain in its indications, and it was sure to fail after a considerable lapse of time.

Any individual temple could give, at most, only two points or periods in the year, and if oriented to a solstice, only one period, which would naturally be taken as the beginning of the new year.

But the early Egyptians, as well as other people, found it necessary to divide the year into parts or seasons just as we do. For, some phenomena, such as the rising of the Nile, was to them of such vital importance, that it was seemly to celebrate it by some religious ceremony. And all such matters had to be arranged and prepared for by the priest-astronomer.

This division of the year into certain seasons could have been done by orienting temples to different points, as required, within the limits of the sun's annual oscillation, and it is quite possible that some of the many temples scattered over the country may have been so oriented.

But this pioneer people had another method of solving this latter problem, and this we proceed to describe.

The sun, in its apparent annual journey about the earth, passes from west to east among the stars in the vicinity of its path. So that a star that is east of the sun by a small amount to-day will be west of the sun after a few days.

Now when a star is east of the sun it rises after the sun, and is lost, or unseen, in the surrounding brightness of the sky. But when it is west of the sun, but not far distant, the star rises a little before the sun and may, if it be a bright star, be seen to rise in the morning dawn just before sunrise.

In this latter case the star is said to rise *heliacally*. As there are several bright stars in the vicinity of the ecliptic, or sun's apparent path in the heavens, the year can be divided into periods and seasons, with considerable accuracy, by observing the heliacal rising of these stars as, one after another, they take their places in the order of rotation.

And as it was the business of the priest to watch for the dawn and the rising sun, it was his business also to detect the first glimmer of a heliacally rising star as it preceded the sun and rose in the brightening dawn.

This very natural method of indicating the coming in of various seasons was in use among many nations of the past, and continual references to it are to be found in ancient classical writings.

But this usage of appealing to the stars necessarily introduced, into the count, time as measured by the sidereal year. And, as the sidereal year is longer than the tropical year by about 21 minutes, the season as determined by the heliacal rising of a star became later from year to year, and after a time became so far out that the star was abandoned in favor of some other that suited the purpose better.

And some of the heliacal risings referred to in the writings of Vergil bear evidence of having been adopted at a date fully 2000 years before Vergil's day.

And such references are often to be looked upon as being traditional rather than of any practical use at the time in which the author lived and wrote.

Ancient Egypt, as far as pure astronomy was concerned, was badly handicapped by the circumstances—first, that the subject was in the hands of the priests and was a part of their priestly education, and that it was, in consequence, surrounded and filled to overflowing with crude religious ideas and numerous religious forms and ceremonies, calculated not so much to teach the people anything as to awe and impress them with the power and importance of the priesthood. And, second, that their only telescopes—or what took the place of

telescopes—were temples, built even more for mysteries and occult ceremonies than for real astronomical observations.

And one must be impressed with the great number of small chambers and pillared halls to be seen in the plan of their greatest temple, while only the axis served any astronomical purpose as far as we can see.

Observation on a heavenly body by such a telescope could be carried out only when the body was on the horizon, that is either at rising or at setting, and even then only when the temple had a proper orientation.

Hence the repeated references and invocations to the horizon, and the double horizon meaning the eastern and the western horizons.

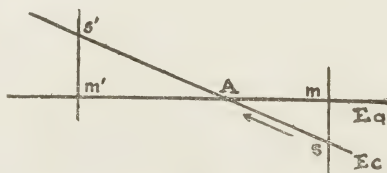
It was only after astronomy threw off the nightmare of theology, which had so long held it in bondage, and became free to follow and discuss its theories in its own way, that possibilities opened up to it of becoming an independent science. And these possibilities being established it soon began to forge ahead.

Except for special reasons, the heavenly bodies are not, to-day, observed upon the horizon, but rather when high in the heavens. And mammoth telescopes capable of being directed to every point in the visible sky are to be found in every well equipped astronomical observatory.

With the appliances of modern astronomy it is not difficult to find a close approximation to the length of the tropical year. But, of course, it must be borne in mind that accuracy in result follows only laborious and painstaking accuracy in observation.

We shall briefly explain here how the position of an equinox may be found—for the sun occupies a tropical year in passing from an equinox to the same equinox again.

In the figure, let the horizontal line Eq represent a part of the celestial equator near a node, and let Ec represent the ecliptic crossing the equator at A , the ascending node.



Now as it is not probable that the sun will be at the node exactly at noon, let s be the sun's position at the noon before it reaches the node, and s' be its position at the following noon.

Then sm is the sun's declination at the first noon considered, and $s'm'$ is its declination at the next noon, and both of these can be observed and measured quite accurately by means of the transit instrument.

Denote these declinations by δ and δ' respectively. Then we have, from similar triangles, the relation—

$$mA : mm' = sm : sm + s'm', \text{ or } \delta : \delta + \delta'.$$

$$\therefore mA = \frac{\delta}{\delta + \delta'} \cdot 24 \text{ hrs.}, \text{ since } mm' = 24 \text{ hrs.}$$

The following will serve as an illustration.

On Mar. 20th, 1882, the declination of the sun at noon was observed to be $0^\circ 4' 53''$ south and on the 21st at noon the declination was $0^\circ 18' 49''$ north.

Here $\delta = 293''$, $\delta' = 1129''$ $\delta + \delta' = 1422''$.

$$\text{and } mA = \frac{293}{1422} \times 24 = 4^h 56^m 33^s.$$

That is to say that in the year 1882 the sun was at the ascending node at $4^h 56^m 33^s$ p.m. on Mar. 20th.

And thus for any year we can find, by direct observation, the time when the sun arrives at the ascending node, and hence the length of the tropical year.

For finding the mere length of the year it matters very little whether we consider the true sun or the mean sun. But if we are in search of the beginning of the year—assuming it to begin when the mean sun arrives at the vernal equinox—it is necessary to reduce the observations on the true sun so as to apply them to the mean sun.

THE CIVIL OR CALENDAR YEAR.

As we have already seen, the tropical year does not consist of a whole number of days, and as far as we know the length of the year is incommensurable with that of the day.

But the calendar or civil year, or that year which is registered in the calendar and according to which all business and commercial matters are carried on, must begin with the beginning of a day and must consist of a whole number of days. For it would be very confusing—too much so to be permitted in practice—to have one year begin at 8 o'clock in the morning, say, and the following year begin at 1.30 in the afternoon, etc.

And this is what would take place if we tried to measure

the year in terms of its true length, and without any reference as to what time in the day it should begin or end.

It follows, then, that if the calendar year is to be kept from wandering too far from the tropical year the calendar years cannot be all of the same length, and that as we count the calendar years as each consisting of a whole number of days, some calendar years must differ from others by a whole day, at least.

How and when these changes or corrections are to be applied, so as to keep the calendar and the tropical years as near together as possible, is our problem.

The ancient Egyptians, from the very nature of their usage, in making one year end and another begin when the sun arrived at the summer solstice, and giving no special attention to the particular number of days in the year so determined, found no difficulty in keeping the calendar year and the tropical year near together, as the necessary lengthening or shortening of the year was automatically effected whenever required.

But with all early people who endeavored to count their years solely as containing a certain number of days, there has been difficulty and sometimes confusion, arising principally from not knowing the exact length of the tropical year.

In counting their year by days, however, the Egyptians had a system quite peculiar to themselves. They knew that there were 365 whole days in a year, and so they established a year of 365 days.

But, as we have seen, the tropical year consists of 365.2422 days, and .2422 is contained in 365.2422 about 1508 times. So that the beginning, or the New Year's day, of this Egyptian year, occurring every 365 days, came in by about $5^h 49^m$ too early each year, and therefore ran through the whole range of the seasons in 1508 years.

Instead of the number 1508 the Egyptians adopted 1460, which would seem to indicate that they assumed $365\frac{1}{4}$ days as the length of the tropical year.

This term of 1460 years was the *great year*, or the *Sothic year*, the latter name coming from the Egyptian term for the dog-star, or Sirius, which is the brightest fixed star in the heavens and which played an important part in the ancient system by its heliacal risings.

The Sothic year was a valuable arrangement for fixing dates, as two years having the same number in different Sothic years could not be less than 1460 years apart, and therefore could not well be confused with one another. And it is said that the Egyptians valued their calendar so highly that the priests exacted an oath from every new Pharaoh that he would not change the calendar.

Leaving the further consideration of this part of our subject until we come to the division of the year into months, we go on to investigate and see what is necessary to be done to keep the calendar year as near as possible to the tropical. For this purpose we may assume, at the beginning, that these years will never differ by more than a single day. For whenever this happens it would be corrected by adding on or dropping off a day, as the case may require.

The tropical year contains an excess of 0.2422 days over the calendar one, and whenever this excess accumulates so as to exceed one day, a day must be added to the calendar year.

We must then divide 2422 by 10,000, and find the convergents by the method of *continued fractions*.

A very close convergent is found to be $8/33$, which means that the annual excess of .2422 days will amount to 8 days in 33 years; and we may now prove this by multiplying 0.2422 by 33. The result differs from 8 days by less than eleven minutes.

Now 33 being an inconvenient period, we may do as follows:—

Multiply both 33 and 8 by $3\frac{1}{33}$ and we get 100, and $24\frac{8}{33}$ respectively. One hundred is certainly a convenient period, and $8/33$ is nearly equal to $\frac{1}{4}$.

So that we may take 100 and $24\frac{1}{4}$ for our numbers, and we find that the excess amounts approximately to $24\frac{1}{4}$ days in 100 years.

The calendar authorized by Julius Caesar and known as the Julian calendar, adds on one day to every fourth year, counting from zero, and therefore adds on 25 days in 100 years. So that in this calendar every year evenly divisible by four is a leap year and contains 366 days, while every year not so divisible is a common year containing 365 days.

This arrangement is certainly very simple, but, as is readily seen from the foregoing calculations, it adds on three-

fourths of a day too much in each century, or three days too much in 400 years.

This excess, small as it is, amounts to 11 days in 1500 years, and when uncorrected causes the equinox to travel backwards among the days of the month.

Thus at the time of the Council of Nice in 325 A.D. the equinox fell upon the 21st of March, whereas by the year 1582 it had receded 11 days and had gone back to the 10th of March.

In order to prevent this wandering of the equinox, and to restore it to its former date two things were necessary—first, to make such a correction in the Julian mode as to prevent the excess of 3 days in 400 years, and second, to drop out 11 days from the current count of time.

These changes were decreed, upon the advice of astronomers, by Pope Gregory XIII, and the calendar so reformed is known as the Gregorian calendar.

In the year 1582 it was decreed that thereafter the full centuries—which according to the Julian calendar were leap years—should be leap years only when the century number is evenly divisible by 4. Thus 1600 was a leap year while 1700, 1800, 1900 were common years. This takes from the Julian count exactly 3 days in 400 years, as required for the correction of the calendar.

And then to restore the date of the equinox it was decreed that the day following the fourth of October in that year should be counted as the 15th of October. This brought the equinox forwards to the 20th of March, but it dropped out only 10 days instead of 11 days, as it should have done, so that the equinox now oscillates between the 20th and the 21st of March.

These changes came into force at once in all Roman Catholic countries, but they were not accepted in Great Britain until the year 1752, by which time the error had amounted to an additional day. In 1752 an act was passed by the British Parliament making the Gregorian calendar the legal one, and ordering that the day following the 2nd of September in that year should be called the 14th of September, so as to bring the count into agreement with that of those countries which had already adopted the Gregorian calendar.

It will be remembered that the ratio upon which we have been working, that of $24\frac{1}{4}$ days in 100 years, is only a close approximation. To find its error and the means of correcting it, if necessary, we may do as follows:—

Assuming the excess of the tropical year over 365 days to be 0.24224 days, as given in the best works on astronomy, we have the excess for 400 years as 96.896 days.

But 400 years, by the Gregorian system, contains 97 leap years, and therefore accounts for 97 days.

Hence the Gregorian calendar adds on too much by 0.104 days in 400 years, or 1.04 days in 4000 years.

To correct this very small error it is proposed that the full thousands of years—which by the Gregorian system would all be leap years—should be counted as leap years only when the number of the thousand is not divisible evenly by 4. Thus, 2000, and 3000 will be leap years, but 4000 will not be.

The accuracy of the Gregorian calendar is wonderful when you consider that it was devised in the 16th century, and that by its usage the equinox would vary from a fixed place in the year by only one day in four thousand years.

The proposed correction for a day in so long a period as 4000 years need scarcely to be taken into consideration. For it is quite possible that changes in the rate of precession of the equinox during so long a term may require some other correction, if any, as it must be accepted that there is nothing fixed or invariable in the Universe except its laws.

Before leaving this part of our subject it may be well to refer to the views of a writer who holds that the adoption of the Gregorian calendar was of doubtful advantage, because, according to his opinion, it would have been better to adhere to one fixed system which had been in use for nearly sixteen hundred years, than to change to a new system that would prove a stumbling block in the chronology of the future.

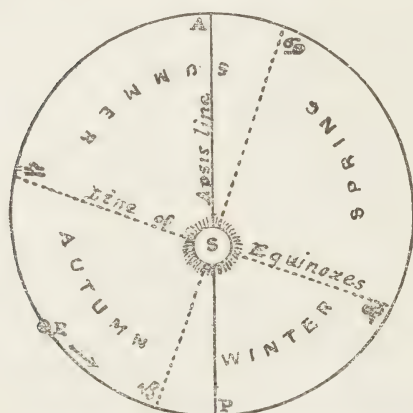
From this view we totally dissent. For we believe that it is immensely more important to man and his usages that the civic year be kept as close as possible to the equinoxes and the seasons, than that the equinox should be allowed to drift through the months to satisfy the requirements of an easy chronology.

For we must remember that man lives in the present and has some interest in the near future, while the past, however valuable it may be as an index of the future, is forever fixed and out of our control. We may improve upon what is and what is to come but we cannot improve that which is past.

DIVISIONS OF THE YEAR.

The seasons divide the year into four parts—spring, summer, autumn, and winter—but these parts are not equal to one another. The reason of this will be readily seen from the accompanying diagram, which represents the earth's orbit with the sun at a focus. *P* denotes the perihelion point and *PA* the apsis line. The line of equinoxes is represented by $\simeq \varphi$ and that of solstices by $\simeq \psi$. Then it is readily seen that the orbital distance from \simeq to φ is less than from φ around to \simeq ,

distance being measured in the direction of the earth's motion as indicated by the arrow at *E*.



Also the earth moves most rapidly in the vicinity of *P*, and most slowly in that of *A*, the aphelion point.

So that, judging from this disposition of things, we would infer that summer is the longest season and

that winter is the shortest, and that of the other two seasons, spring is longer than autumn. And from observation we obtain the following table which gives to the nearest hour the lengths of the different seasons:

	<i>d.</i>	<i>h.</i>
Vernal equinox to summer solstice	=spring=	92 23
Summer solstice to autumnal equinox	=summer=	93 13
Autumnal equinox to winter solstice	=autumn=	89 16
Winter solstice to vernal equinox	=winter=	89 1

This is for the northern hemisphere. For the southern one we would have to interchange summer and winter, and also spring and autumn.

These relations, like most astronomical ones, are subject to slow secular changes brought about mostly by the slow advance of the perihelion and the backward motion of the solstices. But many years will be required to produce any appreciable effect.

But there are, within the year, other well recognized groups of time periods, which have no necessary relation to the seasons or to the earth's motion in its orbit. The two most prominent of these are the week and the month.

THE WEEK.

The week of seven days is the definite, accepted period of time next in length above that of the day. But while the day is characterized by distinct phenomena which limit its extent, the week has nothing of this kind which does not belong equally as well to a period of six or eight or any other small number of days. That is to say, that the day is an astronomical and a natural unit of time, while the week appears to be a purely artificial one.

And yet the institution of the week goes back so far into the past that it is lost in dim and uncertain tradition.

What we wish to consider here is not only why a small and definite number of days were made to constitute a group, for that is evidently a convenient arrangement, but why the number of days chosen should be seven.

Seven is not a convenient number, having no integral divisors, and being in every way the most intractible number below ten. Besides seven is not a prominent or characteristic number in the general operations which naturally go on in this world.

The limbs of all mammals divide their extremities into five parts, or tend to do so, and nearly all phænogamous plants build up their flowers on the scale of four or five or six, five being probably the most common. So that it does not seem that the institutors of the week drew the number seven from anything belonging to natural terrestrial affairs. And whatever it came from it must have been some phenomenon which excludes all possibility of arbitrariness.

That the number 7 was singularly prominent in the religio-astronomic thought of the ancients, is well attested by the stories and traditions that have come down to us. From the clay tablets resurrected from out the mounds which mark the sites of cities long passed away, we learn, among other things, that the ancient Babylonians and Sumerians numbered seven celestial genii and seven infernal genii; that there were seven storm demons which were overcome by the god Bel

Merodach; that there were seven gates of hell; that a charm had to be repeated seven times to be efficacious, etc. And in the old Hebrew records we meet with seven years of plenty and seven years of famine, of Jericho being encircled seven times by the Israelites, of seven angels, etc.

The origin of the seven days in the week was, until comparatively recent times, not a matter for scientific investigation or even of legitimate speculation, but a matter of authority. The common and popular traditional authority is found in the Hebrew book of Genesis, second chapter and third verse, "And God blessed the seventh day and sanctified it: because that in it he had rested from all his work which God created and made."

Here we have the Hebrew view of the origin of the week and of the sanctity of the sabbath. But wherever this idea came from, it was not original with the Hebrew people. For we read from ancient clay tablets that long before Abram emigrated from Ur of the Chaldees to Canaan and there laid the foundation of the Hebrew race, the Babylonians had their *shabattu* or sabbath, being every seventh day set apart for the propitiation of the gods; and so strictly was it observed that even the king would not change his robes, or ride in his chariot, or sit in judgment, or officiate at sacrifices on that day.

And thus the week and the sabbath and the number seven, which occur so frequently in the Hebrew records, are not special Hebrew institutions, but belong to a much earlier civilization than that of the Hebrew people.

And then again, unless taken in some other sense than literally, it is difficult to see how the Hebrew theory of the week and the sabbath can be acceptable to any one who is acquainted with the trend of modern thought. For the idea of the Deity tiring with six days' labor and resting on the seventh, can be described only as a remarkable piece of anthropomorphism, while the scientific view of creation is not that it is a something completed, but rather that it is a process which goes on continuously and forever.

But it is not alone the Hebrew or the Jew that is expected to acquiesce in these traditions and stories that grew up during the childhood of the race; the strictly orthodox Christian is in a position not one whit better.

Christianity, at its inception, made the mistake of taking in and endorsing all the ancient Hebrew legends, under the theory that they were given by inspiration, and were therefore indisputably true, and that they were necessary to be accepted and believed in by all who expected to attain salvation. How such a comprehensive faith came to be adopted is not difficult to understand in the face of the fact that nearly all the world was at the time possessed of the geocentric idea.

But now, that the whole civilized world rejects the geocentric theory, it becomes difficult to find any common ground for some of the pronouncements of orthodox Christianity and modern scientific claims.

Surely, Christianity contains enough, in itself, that is noble, and reasonable, and good, to recommend its acceptance to intelligent people, without subjecting its adherents to the necessity of believing in legends and stories concerning operations like creation, about the nature of which the ancients knew absolutely nothing, and especially when such stories can not be brought into line with the results of modern scientific investigation.

All ancient people, of which we have any definite knowledge, except perhaps a few of the later Greeks, were geocentrists. To them the earth was the centre of the universe and the greatest of all material things, and sun, moon, and stars existed merely for the purpose of administering to this earth and the dwellers thereon.

The earth was fixed and immovable, being supported upon some kind of a foundation, and the heavens with all that they contained revolved about the earth as a centre. This idea of the fixity of the earth was common to all ancient people, and extended down into quite modern times, and no doubt a few people retain the idea even yet. Thus the writer of the book of Job makes the Lord say to Job, "where wert thou when I laid the foundations of the earth"; and as a convincing proof of the matter a middle-age theological savant argued that "as God is in the heavens and not in the earth, so God can move the heavens and not the earth."

These early people saw that the great mass of the stars remained at rest relatively to one another, but that a certain small number of heavenly bodies wandered slowly amongst the stars while pursuing each its own pathway about the earth;

and all the cycles and epicycles of the Ptolemaic and contemporary astronomical systems were invented to explain the peculiar apparent motions of this small number of moving bodies.

These bodies, taken in order of distance from the earth, and beginning with the most distant, are—Saturn, Jupiter, Mars, Sun, Venus, Mercury, Moon—seven in all. The planets here named can all be seen by the unaided eye, and they include all that can be so seen; and we have no reason for believing that anything like the modern telescope was known in ancient times. Also these are the only heavenly bodies—except an occasional comet which was always a vagrant and a harbinger of evil—that appear to move independently and on their own account.

Then again, we know that, besides some of the brighter stars such as Sirius, the sun, and the moon, and the morning and the evening stars were looked upon either as gods or the abodes of gods, and there is no doubt that all these strange self-moving bodies were regarded much in the same manner.

In the system of the ancient Babylonians, the whole day was divided into 24 hours, and over these hours these seven gods, as we shall call them, presided in orderly succession, while the day itself was sacred to the deity that came in with it. Writing these names in order, then—

Saturn, Jupiter, Mars, Sun, Venus, Mercury, Moon—and remembering that 7 divides into 24 with a remainder of three, we see that if Saturn presides over the first day, the Sun will preside over the second, the Moon over the third, Mars over the fourth, Mercury over the fifth and Jupiter over the sixth, as shown in the accompanying scheme:—

	<i>English.</i>	<i>French.</i>
♄	Saturn's day.....	Saturday....Samedi
☉	Sun's day.....	Sunday.....Dimanche
☾	Moon's day.....	Monday....Lundi
♂	Mars's day.....	Tuesday....Mardi....Tiu
☿	Mercury's day....	Wednesday..Mercredi...Woden
♃	Jupiter's day....	Thursday...Jeudi.....Thor
♀	Venus's day.....	Friday.....Vendredi...Friga

in which the first column gives the astronomical symbol of the moving body; the second the corresponding day, or the day

presided over by that particular deity; the third, the English name of the day; the fourth, the French name; and the fifth, some of the old Saxon deities corresponding to Roman ones, and which enter into the English names.

Saturn, the most distant of the known planets, was, for some reason, accredited with an evil influence, and the day sacred to it was, something like our Friday, thought to be unauspicious for the beginning of new undertakings—a day on which the gods were to be propitiated, and people were to abstain from the pursuit of their usual callings. This was the *Shabbattu* of the Babylonians which subsequently became the Sabbath of the Jews.

The Christian, no doubt partly through hatred of the Jew at the time, rejected the Jewish sabbath and chose Sunday as his weekly holy day. But on what ground, other than that of common usage, he can claim for his particular day that peculiar sacredness that is usually ascribed to it, is a matter difficult to see.

As a remnant of old Astrology the word *Saturnine*, which denotes a gloomy and morose disposition, was long believed to be applicable to, and distinctive of a person born under the evil influence of Saturn.

We have now explained the origin of the week of seven days and the sabbath according to the latest and most satisfactory knowledge on the subject, and along lines that are natural and reasonable. But arguments of this kind are lost upon those who prefer the explanation through ancient myths to that through natural phenomena.

At the time of the French revolution, owing to the craze for working the number 10 into everything, an attempt was made to establish a week of ten days. But the authors of the ten-day week reckoned without their host. The influence of the church was against it and the people did not want it, and so it came to nought.

While we are not in sympathy with the argument that on account of its divine origin, the week of 7 days is absolutely perfect—an argument which has sometimes been put forward—we nevertheless believe that a week of 7 days is better, in several ways and for several reasons, than one of 10 days would be. Some of these reasons will appear later on.

THE LIFE OF PRE-CAMBRIAN TIMES.*

THE rapid development of natural science during the past quarter-century has revolutionized the conceptions of scientists in nearly every field of knowledge. Hypotheses and theories, firmly adhered to at the beginning of that period, have proved unworthy of confidence and have been displaced by new ideas more in harmony with the newly discovered facts. In geology, as in many another science, the attainment of scientific truth has completely overthrown many an outworn doctrine. Chief among these have been the conceptions of the conditions under which the rocks of pre-Cambrian times were formed.

The oldest rocks known to outcrop on the earth's surface are no longer regarded as "primary", the remnants of an original crust, but instead are known to be just as much "derived" as any of the younger rocks. Instead of being formed under unusual conditions of temperature, atmosphere content, and light intensity characterizing a primitive stage in earth history, they are the result of the same forces, operating in the same way under the same conditions, which brought into existence the formations of more recent times. Instead of considering pre-Cambrian time as of relatively short duration, we now know that the oldest rocks yet discovered were deposited at a comparatively late date in the history of the earth as a whole, and that the time which elapsed after they were laid down and before the latest of the pre-Cambrian sediments was formed must have covered an interval much longer than all subsequent time.

* It was early observed by the pioneer geologists that the rocks of the earth's surface in most localities were of two kinds; contorted crystalline beds or massive granular rocks underneath flat-lying, fossiliferous strata. The latter were very evidently derived from the older rocks and were called 'secondary', while the former were referred to as the 'primary' rocks. The lowermost of the secondary rocks were named Cambrian from their occurrence in Cambria (Wales), and were for a long time defined as the oldest rocks which contained fossils. In modern classifications the Cambrian is the first period of the Paleozoic Era, and all the stages in earth history which preceded it are pre-Cambrian.

The vast vista thus displayed, extending far backward along the dim corridors of time, provokes many questions concerning the life which may have existed during this far-off æon. These questions hold a deep interest for him who is concerned with the problems of geologic life development.

The great "Canadian Shield", so named from the rough resemblance of its outline to that of a shield, stretches approximately from Mackenzie river to the St. Lawrence, and from Baffin bay to central Wisconsin. It is composed in the main of metamorphosed sedimentary and igneous rocks, the scarred and rugged veterans among the strata of the earth's periphery. This is the "backbone of the American continent" and exposes at the surface one of the largest areas of pre-Cambrian rocks in the world. Fringing its margin, and in places occupying depressions on its surface, are the little-deformed, richly fossiliferous terranes of the Paleozoic Era, the era of ancient life. These are in turn succeeded by the rocks of the Mesozoic and Cenozoic Eras, the eras of medieval and modern life.

Four-fifths of the Canadian shield consists of gneisses and granites which in the time of Sir William Logan, the father of Canadian geology, were believed for the most part to represent the "basement complex" upon which the sedimentary rocks were deposited. Now it is known that the granites and other igneous rocks were intruded into superjacent lava flows and sediments. The latter must therefore be the older series. The complex relations of these ancient rocks are extremely difficult to unravel and much remains to be ascertained, but a definite sequence is beginning to be established from the tangle and it is hoped that the time is not far distant when an accurate correlation of events will be made known.

Very briefly, the known history of pre-Cambrian times may be stated as follows. The oldest rocks yet recognized consist of the lava flows and products of volcanic eruptions known as the Keewatin series.* These may have been in part contemporaneous with the deposition of the extensive and remarkably thick beds of limestone, sandstone, and shale composing the Grenville series. Both series were uplifted, intricately

* This series and the subsequently mentioned ones derive their names from the localities in which they are typically developed or in which they were first carefully studied.

folded, subjected to great pressure, and invaded, and in part engulfed, by the great masses of Laurentian granite which occupy the region adjacent to St. Lawrence river. As the molten granite welled up from the depths of the earth into the Keewatin and Grenville series they were arched up into a great mountain chain and were metamorphosed into quartzite, marble, gneiss, and schist. For a long space of time the Canadian region seems to have been above sea-level and subject to the action of running water which wore away the uplands and exposed the intruded granites at the surface of the ground. Slowly the oceanic waters spread northward across the United States and into Canada. Long rivers flowing from the north built a wide delta in that portion of the sea which occupied Ontario in the vicinity of Lake Timiskaming and southward to Lake Huron. The regularly bedded sands of this delta, derived from the quartz of the granites and quartz-veins being eroded from the hills of northern Ontario, are now the quartzites of the Sudbury or Timiskamian series. Again the tranquillity of events was interrupted by a second revolution during which a second and greater chain of mountains was uplifted and the extensive granite masses of the Algoman series were injected into the recently deposited sediments deforming, upfolding, and metamorphosing them in a most profound manner. As the subterranean forces spent themselves, erosion attacked the new-born mountain range and not only stripped off the surface covering of deformed sediments exposing the granite mass of the mountain core, but bit by bit reduced the whole land area to a monotonous plain, a broad land mass of low relief. The long period of erosion was brought to an end by gentle deforming movements which warped the land surface into basins and hills.

An ice sheet, possibly comparable in dimensions to that which in recent times affected North America, was formed over the land. When it melted away extensive deposits of glacial drift were left in the Cobalt district. The glacial beds were in part buried by river-borne debris and marine limestones, succeeded by the iron-bearing series of the Lake Superior region. These strata are variously known as Huronian or Animikean. Finally, the long pre-Cambrian record was closed by the deposition of the Keewawan rocks, a series of sediments interbedded with lava flows and volcanic ejecte-

menta of various kinds. Once more erosion held sway and when next the Canadian Shield received a covering of sediments they were the highly fossiliferous beds of the Cambrian period and the Paleozoic Era had begun.

From this brief summary it may be seen that the known pre-Cambrian time consisted of three long tranquil periods of quiescence, each closed by a tremendous mountain-making revolution, accompanied by enormous upwellings of molten lava, and followed by a long interval of erosion. The first of these stages in earth history, including the time up to the close of the Laurentian intrusions, may be known as the Archeozoic Era, the era of primal life; the other two compose the Proterozoic Era, the era of primitive life, and may be conveniently referred to as the Early and Late Proterozoic Eras.

Probably there is no more dramatic incident in earth history than that which marked the introduction of organic life upon this planet, unless indeed it be the appearance of man himself. Unfortunately the hope of finding a record of the first living organism may be quickly set aside. *A priori* one could scarcely hope for any trace to have been preserved of the minute, delicate bit of protoplasm, which must have been the starting point for the development of the long line of plants and animals; it obviously could have had no hard parts nor any tissue structures suitable for fossilization. Moreover, if any record had been made it could scarcely have withstood the vicissitudes of the three pre-Cambrian revolutions, if indeed it was not buried far below the present surface of the earth. It is not likely that any long interval of time would have elapsed after this planet became suitable as a habitation for living things before life was introduced. According to the Planetesimal Hypothesis of earth origin—an hypothesis which postulates the growth of the earth by the accretion of discrete particles of meteoric materials—this would have occurred when the growing planet was somewhat larger than is Mars at the present time and long before it had attained half its present mass. Even at that early date it must have had an atmosphere comparable in composition and amount to that of the present day, rain must have been falling on its surface, water must have been collecting in its basins, and the temperature and light intensity must have been much the same as those of to-day. If, as is highly probable, life appeared at that early

stage, much of the evolution into higher forms would have been accomplished before the deposition of the earliest Grenville sediments.

Approaching the problem from the other end of the time scale it is apparent from a study of the life of the Cambrian, the first period in the Paleozoic Era, that the beginning of life on this planet must be projected far back toward if not beyond the opening of the Archeozoic Era. In the Cambrian strata we find for the first time a legible and fairly complete record of the life which existed while the rocks were being formed. In the fossil remains which constitute that record are representatives of every great branch of invertebrate animals. Already evolution had produced a remarkably diverse and highly developed assemblage of living creatures. Nervous system, digestive apparatus, organs of reproduction, circulatory canals, in short, nearly every anatomical system and physiological function of modern invertebrates were possessed by these early forms. Only the vertebrate phylum is unrepresented here. The trilobites and closely-related crustaceans were the most distinguished denizens of the Cambrian seas. That they were the descendants of a long line of ancestors is indicated not only by their highly specialized sense organs and other body structures, but by the fact that certain of them are known to have passed through a series of remarkable changes after becoming sufficiently mature for fossilization. In these changes the individual recapitulated a portion of the history of the race; in a like manner the embryological and youthful stages of modern animals are an epitome of the ancestral development of the class. It is indeed a far cry from the life of the Cambrian to the much more complex and highly specialized life of to-day, but it is probably not an exaggeration to state that seventy or eighty per cent. of the whole process of evolution, by which the myriad organisms of the present time have been developed, was accomplished by the close of the Proterozoic Era.

That life was in existence throughout Archeozoic and Proterozoic times is abundantly demonstrated by the strata of those ages, but the greater part of the secret concerning the nature of that life is yet to be wrested from those rocks. The clean quartzites of the Grenville and Sudbury series are the products of mature decomposition of the land masses from

which the sand grains composing them were derived. The slow processes of weathering must have broken down the granitoid rocks, decaying them bit by bit, causing the decomposable constituents to be carried away in solution or washed as fine silt far out from the river mouths into the quiet off-shore waters, while the streams sorted out the quartz crystals, ground them down to sand grains, and built up deltas of pure sand at their debouchures. At the present time such mature decomposition goes on only where the land surface is prevented by a mantle of vegetation from being rapidly eroded away. The implication is strong that a covering of plant life must have protected the land masses of pre-Cambrian times in order to permit such extensive deposits of clean sand to accumulate.

Further indirect evidence of life during these eras is provided by the graphite-bearing limestones which are present in the Grenville series in great abundance. It is just possible that limestone may be deposited in great amount without the influence of organic life, but such deposition has never been adequately demonstrated. Most limestones are known to be the result of the activity of plants and animals which secreted the lime, or, decaying, so modified lime-bearing waters that the lime was chemically precipitated. The inference is strong that these early limestones originated in a similar way, but the fact can hardly be said to be demonstrable. On the other hand, the presence of graphite is accepted by all geologists as evidence of the existence of life. So far as known, free carbon may originate at the earth's surface only through the agency of living protoplasm in the presence of the green chlorophyl of plant tissues. Barrell states* that "the presence of graphite in Archeozoic sediments is therefore an indirect proof of considerable strength that not only did a lowly plant life swarm on the earth in this earliest known era, but that the rays of the sun also reached the surface. There was at that time no impenetrable cloud mantle darkening a primordial atmosphere."

The fossil remains which have been discovered in pre-Cambrian rocks are astonishingly few and certainly do not give any adequate picture of the life of that time. Assuming

* Pirsson and Schuchert, *Text-book of Geology*, 1915, p. 547.

that the limestones, sandstones, and shales of the Canadian Shield had contained plant or animal remains when first deposited, one would hardly expect that the delicate organic structures would now be recognizable. The change to crystalline marble, quartzite, and schist would without doubt obliterate all traces of organic life. But in the Cordilleran region of both the United States and Canada are extensive terranes of little disturbed, practically unmetamorphosed sediments of Proterozoic age and even these are almost devoid of fossils. Plants almost certainly had not as yet developed any woody tissues or siliceous fibres, but in the light of the Cambrian record of animals it seems scarcely possible that corals and molluscs were not possessed of shells and skeletal structures suitable for preservation. Yet that must have been the case or else we must believe with Walcott* these western sediments were deposited on river flood-plains or in basins of fresh or brackish water to which marine life had only occasional access. Certainly the few fossils known from these beds, and these will be described in a subsequent paragraph, are in harmony with such a view.

No remains of undoubtedly organic origin have ever been described from rocks which are known to be of Archeozoic age. More than half a century ago Logan discovered in Grenville limestones certain structures to which Dr. J. W. Dawson gave the name *Eozoon canadense*, the "dawn animal of Canada." The final verdict of science concerning these so-called fossils has not yet been reached. From 1865 to 1895 the *Eozoon* question† was the subject of many contributions by scientists of Canada and England and the dispute even spread to other nations as well. On the one hand were those who dogmatically asserted the inorganic origin of all such structures and on the other were those who as confidently affirmed their organic nature. Harsh criticisms, bitter recriminations, and scathing personalities were bandied back and forth and in many quarters the desire to know the truth of the matter seems to have been subordinated to the attempt to prove that opinions once

* Smithsonian Misc. Coll., vol. 57, 1910, pp. 1-16.

† For an excellent summary of the many articles concerning *Eozoon canadense*, see Merrill, G. P., Rept. of the U. S. Nat. Mus. for 1904, pp. 635-646.

expressed must inevitably be correct. One is reminded of the fable of the deputation of "scientists" sent to examine the elephant and to submit a report—presumably to the government—concerning that beast. The committee—or was it a commission?—consisted of six men each of whom was very wise and very blind. One blind man encountered the elephant's side and stated that the elephant was very like a wall; another felt his trunk and came to the conclusion that the elephant was very like a snake; a third examined his tail and affirmed that the elephant was very like a rope; the fourth came in contact with a leg and decided that the elephant was very like a tree; another examined the elephant's ear and declared that the beast was very like a leaf; while the last touched one of the elephant's tusks and gave it as his opinion that the elephant was very like a spear. The commission journeyed homeward, but before they reached their destination each member had resigned because none of the others would agree with him. In the case of *Eozoon canadense* the consensus of opinion to-day seems to be about as follows: certainly, none of the structures so named are the remains of protozoan animals as was first affirmed; certainly, many of them are of inorganic origin, the result of metasomatic processes; and, possibly, some of them represent the secretions of calcareous algae of the same order of tiny plants as those whose remains have been definitely identified in rocks of Proterozoic age, as noted below.

For the present, therefore, the proof that life was in existence during Archeozoic times rests solely upon indirect but perfectly valid evidence. The profound metamorphism which has affected all known rocks of that era may have rendered its life record forever illegible, but careful search may yet be rewarded by the discovery of recognizable fossil remains not completely obscured by the vicissitudes of succeeding ages.

Only one instance of true fossils from Early Proterozoic rocks has come to light. Near Steeprock Lake, in western Ontario, is a series of sediments known as the Steeprock series. The limestones of that series are about 500 feet thick and certain beds are composed almost exclusively of organic remains. According to Dr. A. C. Lawson* these sediments were deposited during the long interval succeeding the intrusion of

* Geological Survey, Canada, Memoir 28, 1912, pp. 1-15.

Laurentian granites and preceding the irruption of granites which may be correlated with the Algonian intrusives. They would, therefore, be of Early Proterozoic age and the fossils they contain would be the oldest known relics of undoubtedly organic origin. As described by Dr. C. D. Walcott† the Steep-rock fauna consists of two species of a sponge-like creature to which he has given the name *Atikokania*. Associated with these forms is a fragment that suggests the work of calcareous algae similar to those whose remains are known from the western Proterozoic rocks described in a succeeding paragraph.

For the most part the Sudbury and Timiskamian strata are profoundly altered and highly metamorphosed so that the absence from them of fossils is to be expected. The same is true of the Late Proterozoic rocks of the Canadian Shield. From the Proterozoic rocks of the Cordillera, however, a number of different organic remains have been described and there the life record, woefully incomplete though it be, may be deciphered. A difficulty presents itself even here for these rocks show little deformation or metamorphism, and although they are clearly of Proterozoic age, it cannot be affirmed whether they belong to the Early or Late Proterozoic Era. Probably they are later than the Algonian revolution.

Perhaps the most interesting of these western pre-Cambrian fossils are those from the Belt series of Montana and British Columbia. The Belt flora consists of algae similar in type and activity to the Blue-Green Algae which in the fresh-water lakes of the present day secrete sponge-like or concentric masses of calcareous matter. Dr. Walcott‡ has described twelve species of these plants, referring them to seven genera. Certain of the beds are literally reefs or banks of fossil algae. Indications of the presence of bacteria have also been noted in these rocks. The fossil fauna of the Belt series includes several species of annelid worms, recognized from their burrows or trails, and a large crustacean, *Beltina danai*. The latter is referred by Walcott* to the Merostomata, the sub-

† Geological Survey, Canada, Memoir 28, 1912, pp. 16-19.

‡ Smithsonian Misc. Coll., vol. 64, 1914, pp. 77-156.

* Bull., Geol. Soc. Am., vol. 10, 1899, pp. 237-239.

class of arachnids, which includes the modern king-crab *Limulus*. Whether or not the systematic position of *Beltina* has been correctly recognized, it is apparent that the creature was possessed of highly differentiated anatomical structures and represents a remarkably advanced stage in evolution for such an early time.

The Proterozoic rocks of the Grand Canyon of the Colorado are known as the Chuar and Unkar terranes. Traces of organic remains are known from the first-named strata and these include fossil algae of the same type as those in the Belt series. In the same series is a primitive brachiopod as well as certain obscure forms too incompletely preserved for accurate determination.

In Gallatin County, Montana, there are outcrops of Proterozoic limestones which contain numerous flattened spheroidal masses which the people in the vicinity call "fossil turtles." These were first described by Dr. A. C. Peale† as concretions but have recently been examined by Dr. Walcott, who pronounces them secretions of another type of calcereous algae.

The presence of the recognized remains of algae in so many localities in pre-Cambrian limestones is strongly suggestive that the greater part of such rocks resulted from the activity of the algal flora. Studies of an algal bank in the Bay of Naples about a hundred feet below the surface of the water have been made by J. Walther. He reports that the action of percolating waters gradually obliterates the structure and the calcareous mass becomes a structureless limestone. It may well be that the apparently unfossiliferous limestones of Proterozoic age have originated in this way.

Only one occurrence of pre-Cambrian rocks in other continents is worthy of note in this connection. From strata in Brittany, which are evidently of Proterozoic age, fossil remains have been described by Cayeux.* The fossils are of microscopic size and indicate the presence of protozoan animals at the time of the formation of the rocks containing them.

Summarizing the above facts, it appears that the existence of life during pre-Cambrian times may be inferred from

† Bull., U. S. Geol. Surv., No. 110, 1893, p. 17.

* Pirsson and Schuchert, Text-book of Geology, 1915, p. 573.

a priori deductions, is demonstrated by indirect evidence, and is recorded by a few fossils. These give an extremely incomplete record of the life of the time but indicate that there was a luxuriant flora of lowly algae, and a scanty fauna which included protozoans, spongoids, worms, brachiopods, and crustaceans. Such a fauna could scarcely be called a primitive one and confirms the deduction that the genesis of life on the earth must be projected back far beyond the beginning of the geological record. It also implies the presence of numerous forms of life, a record of which has not yet been discovered, and leads to the hope that careful search will some day reveal much more completely the nature of the beings which peopled the earth during these ancient times.

KIRTLEY F. MATHER.

December 4, 1915.

A GROUP OF SONNETS.

As when the sun uprising to the morn
Rides to his zenith with increasing fire,
Then from his highest throne by time o'erborne
Before advancing shades begins retire,
So is the light of love in human life.
It soars from youth's fair prime to man's full day,
Then, vexed by shadowy Time's insidious strife,
Glides slowly sinking downwards to decay.
Love is a fire which in life's desert space
Gleams through the darkness of our duty's sphere,
The higher reared, more lasting in its place,
With purer fuel fed, its light more clear.
So if thou light my soul with love divine,
Light on my path shall ever brightly shine.

My heart was vacant in unfriendliness,
My spirit burdened with adversity,
But thou wast nigh, and straightway my distress
Dissolved before thy radiant sympathy.
Then went I joyful under heaven's glad gaze,
My spirit rose, a flashing meteor,
Sporting through the vast planetary ways
As it might touch terrestrial things no more.
O thou art beautiful! in thy fair sight
Earth's clouds become a throne of ecstasy,
Where, canopied with pure ethereal light,
Ten thousand loves convey their joys to me!
Then let the world from me its friendship take,
So thou mayst in my breast thy pleasures make.

Whilst looking o'er the world's wide-troubled sea
Whereon my bark lay vexed with winds of care,
With sudden bound wild Fear confronted me,
And changed my view to darkness of despair;
But thou didst pity then my woful plight
Seen with the brightest vision of thy love,
For thou didst send within my hopeless night
An angel-voice, which whispered, "Look above."
I looked above the sullen front of Fear,
Saw Hope with rosy finger point my way,
Drew courage from her radiant look of cheer
And steered my bark right out to peaceful day.
By which I to the world this thesis prove—
Thy love shall ever all my fears remove.

Nov. 18th, 1915.

—Henry Peeling, Callander, Ont.

ANIMAL ECOLOGY.

ANIMAL ecology is the most recent branch of zoology and is now only in the initial stages of its development. We may define it as the study of animals in relation to their environment.

Plant ecology is a good deal older than animal ecology, and has stood as a separate branch of botany for the past fifteen years. This is undoubtedly due to the simpler and far more uniform structure of plants as compared with animals and to the fact that most plants are stationary and thus their relation to their habitat is far easier to work out.

Animal ecology is an extremely broad subject. The study of the environment requires some knowledge of geology, meteorology, soil physics, soil chemistry, and of plant ecology. Plant ecology requires a knowledge of systematic botany, plant physiology and plant histology. The study of the animals in the environments calls for a knowledge of systematic zoology, anatomy, physiology, embryology and animal psychology. It is of course a field study and this means that a knowledge of field work, with its incident familiarity with equipment, camp-life, wood-craft, chart-reading, photography, collecting, and note-taking, is a prerequisite.

Animal ecology is a dynamic study, not a static one. The compiling of a list of the species of animals of a region is not animal ecology. The compiling of a list of the dominant forms of a particular habitat is only a beginning or basis for ecological work. Real ecological work entails the working out of the relation of each dominant species to its environment, and to every other dominant species, since all other species in a habitat are part of the environment of any particular species. It entails also the study of the changes continually, very slowly often, it is true, but still continually, taking place in the environment. This change by which one habitat gradually passes into another is termed succession and may be illustrated by considering a pond. In the early stages we have clear shores and clear bottom, and consequently we find animals characteristic of such habitats. In the next stage *Chara* is present and with it certain species of animals. Next we have sub-

merged aquatic plants present, such as *Myriophyllum*, *Elodea*, and *Potamogeton*, and again we find a changed fauna. Then the emerging vegetation, such as rushes, sedges and grasses, gradually grows out from the margin until the pond is converted into a marsh. In this stage we find again a different group of animals, and we have two strata—an aquatic stratum and an aerial stratum. The marsh is in turn invaded by trees and with them come other characteristic animal groups. Gradually the marsh is converted by the accumulation of vegetable debris into dry land, and passes through several stages, each marked by certain characteristic animal forms, into the climax formation of the region. This climax formation varies in different parts of the country. Over a large part of southern Ontario it is the Maple-Beech forest, over other large stretches of Canada it is the Spruce-Birch forest.

A climax formation is that formation towards which all other formations tend, and this particular type of succession, in which several quite distinct habitats all converge towards one formation is termed convergence. In southern Ontario, for example, habitats as diverse as ponds, peat-bogs, dry thickets and sand-dunes all converge towards the Maple-Beech forest. Further, this climax formation is, as the name implies, the last and stable formation.

Another kind of succession, which is well marked in some habitats, is seasonal succession. In this case a certain area may be an aquatic environment early in the season and a terrestrial one later on.

The idea of succession is expressed even on a smaller scale, as in the succession of beetles in a single tree. Certain wood-boring beetles attack living trees and by their attacks kill them, thus paving the way for other species which live only in recently killed trees, while these in turn are succeeded by species which live in wood which is more or less decayed.

One important difference between the ecology of plants and animals is that the former respond to the influence of the environment by a change in structure, the latter by a change in behaviour.

A fact which complicates animal ecology is that animals may belong to two or even three habitats. Thus an animal may breed in one habitat and feed in another, or it may pass

its first stages in one and its adult life in another, only visiting the first habitat again for oviposition. The turtles, which feed in the water and lay their eggs in dry sandy banks, are an example of the first class, and numerous insects belong in the latter category.

In aquatic environments the factors which we have to consider are the amount of salts, oxygen, and carbon dioxide, light, temperature and materials for food and abode. In terrestrial habitats the factors are, temperature, light, humidity, air pressure, air currents and materials for food and abode. The best single criterion for a terrestrial environment is the evaporating power of the air, as it takes in all the factors except the last two.

In making our main divisions of habitats one factor must be taken and the one which gives the most practical arrangement is the amount of water. On this basis we classify our formations, which is the name given to the main ecological divisions. The formations are then divided into associations, and the associations into consocieties. In making these two latter divisions different factors have to be taken into consideration in different cases. As an example of these groups we place all fresh-water animals in the Hydrotheric Formation, those of streams belong to the Potamicolus Association, and if they live in pools in these streams they constitute the Pool Consocieties. A consociety is thus the unit in animal ecology, much as a species is the unit in systematic zoology. In some associations, as for instance in the associations of the Hylitheric Formation, or Forest Formation, stratification comes in. Thus in the Maple-Beech Association we have a subterranean stratum, herbaceous stratum, shrub stratum, tree-trunk stratum and tree-top stratum, and each stratum has its consocieties.

From this brief outline it can be seen that animal ecology is essentially a live subject, a study of living animals under natural conditions, that it is a complex but extremely fascinating study, and that results obtained by it will act as a balance-wheel on purely laboratory studies of animals.

A. B. KLUGH.

THE CO-OPERATIVE STORE IN CANADA

The Co-operative System.

No other word, used to designate a definite commercial or social system, has perhaps been more universally misused than has "co-operation." Although its strict denotation, "working together," would lead anyone, not conversant with co-operative enterprise, to suppose that any form of association, either for buying, selling or producing, such as a joint stock company, might legitimately come under the designation of co-operation, yet there has grown up a vast system of industry which is especially and exclusively "co-operative" in its form; the success of which has led to the misapplication of the term to innumerable other forms of enterprise, called, sometimes unwittingly, but more often deliberately, co-operative, and which have no claim to be thus designated. It may be well, therefore, to state exactly what a co-operative enterprise is, and to do this no better definition can be found than that given by Mr. C. R. Fay in his *Co-operation at Home and Abroad*: "A co-operative society is an association for the purpose of joint trading, originating among the weak, and conducted always in an unselfish spirit, on such terms that all who are prepared to assume the duties of membership may share in its rewards, in proportion to the degree in which they make use of their association."

In this definition there are several most important points to be noted, the first being that a co-operative society is formed for the purpose of joint trading. That is to say, the members of the society are themselves the traders. In the earliest form of co-operative enterprise the members actually conducted the whole business themselves, but now generally a manager and paid assistants are engaged.¹

The next point to be noted in the definition given is that such associations originate among the weak. Co-operation is essentially the weapon of the poor, who combine to benefit themselves by united action. When any co-operative enterprise

¹J. S. Mill, *Princ. Polit. Economy*, laments the fact that this is so, and considers that to hire clerks and shop assistants is a falling away from the purity of the co-operative ideal.

is organized among the comparatively affluent, in nine cases out of ten it quickly degenerates into a capitalistic enterprise and the purely co-operative features tend to disappear. It is true that in Great Britain the co-operative societies are immensely wealthy, but they have grown to such honorable estate through the thrift of the poor, and their clientele is almost exclusively among the humbler strata of society. Besides being an association originating among the poorer classes, co-operation is one of the most potent factors yet devised for the defence of the individual against the monopolist. The history of the movement in Great Britain affords innumerable instances of the victory of the consumer over the rapacity of the producer, and as will be shown hereafter the same has been found in Canada.

The third point to be noticed is that the association must be carried on in an unselfish spirit. The famous motto of the English co-operators, "Each for All, and All for Each," must be lived up to in its entirety if the enterprise is to be successful. A co-operative society is a very difficult thing to keep going. Dissension among the members is absolutely fatal, and Canadian experience has shown time and time again that, provided the society is united, it will stand, but divided it will assuredly fall.

The fourth most important point is that those forming the association must be ready to assume the duties of membership, which duties are, first, as has already been said, the fostering of the spirit of unity, and secondly, loyalty to the association. If a co-operative society is going to succeed it must command the patronage of its members. Many a man, convinced of the benefits of a co-operative store, will become a member of the society, only to find that his wife objects to deal there, on the plea that she does not like the goods stocked, or that she is accustomed to go elsewhere and does not like to change. The fifth point, that all members share in the profits in proportion to the degree in which they make use of the association, is perhaps the most fundamental characteristic of all co-operative associations. All profits are divided among the members in proportion to their purchases, the largest customer of the store getting the greatest return; this system will be explained hereafter.

Co-operative as distinguished from Stock Association.

No commoner mistake is made than to apply the name "co-operative" to a purely joint stock enterprise, and the difference between the two systems may be very easily seen. First and foremost a joint stock company issues its shares to the general public. Shares are held by those who have an interest in the company other than a pecuniary one, who are in fact in the position of sleeping partners, content to receive dividends alone, and who may never even see the business in which they are interested. The co-operative society, on the other hand, sells its shares to members exclusively, to members who are interested, if it be a co-operative store, not only in the dividends paid on their investment but also in the profits divided in proportion to their purchases, or if it be a producing association, those who make use of the facilities granted by the organization for marketing their commodities.

The second radical difference between the two is that in a joint stock company the only aim and object is to earn dividends for impatient shareholders, while in a co-operative association far more than the actual pecuniary gains is the invaluable service afforded to members. Indeed the social service of co-operation, the teachings of thrift, of the power of union, of the community spirit, and of education, are valued by the best observers and critics of the system at a far higher level than any mere payment of dividends. Co-operation strives before all else to raise the social and intellectual status of its members, not primarily through pecuniary gains, but through education. The failure to grasp this conception has wrecked more co-operative enterprises in Canada and the United States than any other single factor.

The last fundamental difference between the two systems lies in the rule that in joint stock companies votes are reckoned according to the stock held by the individual shareholder, while in a co-operative association the inflexible rule is, one member one vote. This rule has been found in the past to be the great safeguard against the influence of the comparatively wealthy member, endangering the democratic character of the organization. In fact, every co-operative association must, of necessity, be absolutely democratic in its form, otherwise the whole system must fall to the ground, and a capitalistic régime

defeat the very objects for which co-operation strives, namely, the benefit of the less well-to-do classes of society.

Co-operation in North America.

Having now defined, very briefly, the more salient features of the co-operative system as found in its true and original form in England, we may ask what the course of the co-operative movement in North America has been. And here we are confronted with a melancholy and disheartening prospect. The history of co-operation both in Canada and the United States has been a disastrous one. As one writer has said in speaking of the movement in the United States: "Every decade since the eighteen-forties has seen at least one enthusiastic wave for co-operation pass over the country,"² and although we can not trace the movement back quite so far in Canada, we can at least say the same for every decade since 1860. The same writer goes on to say what is only too lamentably true: "The failures of so-called co-operation in this country have been so numerous and regular that, with the mass of wage workers and the general American public, the whole co-operative scheme as a social reform is in disrepute."

If we are to believe, and those who have studied the subject are forced to believe, that the co-operative system presents features of great and enduring value for society, this statement, borne out and reluctantly corroborated by many witnesses, must prove a subject for reflection, if not of disquietude for the future, and regret for the past. If we face the situation fair and square we are confronted with a proposition which may be stated as follows: The co-operative movement in Europe has been a gigantic success. Not a country on the continent but has felt its potent influence; Germany through its principles has solved the problem of agricultural credit; Denmark has regenerated herself in a single life time; the face of Ireland is being changed by it, and millions in England and Scotland have reaped the benefits promised by it; the New World alone has found it a failure. Why is this? But before we answer this question, let us pause a moment and ask

²"Markets for the People," by J. W. Sullivan, p. 142. See also "Co-operation in New England," by Dr. James Ford; published by the Survey Associates.

ourselves whether North America has been alone in its failure to succeed in what the Old World has found so beneficial. Here we find on investigation that the cause of co-operation has had no especial success in other countries which have felt the inrush of immigrants from Europe. The history of co-operation in British South Africa, Australia, and Newfoundland has been none too heroic, and the failures in Canada may be almost exactly paralleled by downfalls as great, or even greater, in these other parts of the British Empire.

We are, therefore, constrained to consider whether there is not some great underlying cause which makes new countries like the United States, Canada or South Africa unfitted for the spread of co-operative principles in their strict application. When we have faced this problem we have come very near solving the whole question, for most undoubtedly there are economic considerations and social ideals inseparable from young and vigorous peoples that make the humble, plodding tenets of the co-operator unsuited to these new conditions. Let us therefore inquire what these reasons are.

Reasons for Failure.

First and foremost, the investigator will find apparent one great fundamental fact, the New World has not felt the need of co-operation so far to any great extent. High wages and abundant opportunities for employment have led to a very high standard of living, incompatible in most instances with the necessity for that thrift and carefulness which finds its greatest exponent in the co-operative system. The German labourer thinks in pfennige, the Frenchman in centimes, the English in halfpence and farthings, while the Canadian thinks in dollars and dimes. The prosperous Canadian workingman would not thank you for telling him how to save a cent, and the co-operative doctrine has not yet, to any great extent, appealed to him as a necessity of his economic well being.

The real fact is that the Canadian wage or salary worker has found a level on this side of the Atlantic akin, and in many ways very similar, to the prosperous middle class of England, that class which treads so closely on the heels of the "gentry," and is for ever striving after "superior" and "refined" standards of living and conduct. But let it be carefully noted, and here is the crux of the whole situation, it is not the prosperous

middle class in England or Scotland, or for the matter of that in any country, that forms the backbone of the co-operative movement. The old country co-operators are to an overwhelming degree the factory operatives, the respectable working man; the upper class and the lowest class are not co-operators, the one from disinclination, the other from lack of means and even of understanding. And so we find that the typical Canadian who is generally fairly well-to-do, is not a co-operator, not because he is a snob, for most assuredly he is not that, but because the necessity for co-operative measures has not come home to him, a reflection which may not be without its satisfying qualities. And secondly, the Canadian has found other fields for the investment of his savings than in the co-operative society. Almost invariably, as soon as he is in a financial position to do so, he has bought his own house. No computation has ever been made of the proportion of the population of Canada that owns its own home, but it must be a high one. In late years, too, the Canadian has done quite a lot of speculating in real estate, some of it wisely and legitimately, an enormous proportion of it very unwisely. And so his savings and his efforts have been directed into other channels, and once more there has been no room for co-operative enterprise through the medium of consumers' associations. And thirdly, the great fluidity of the Canadian population has had a very markedly deterrent effect in the progress of co-operative enterprise both in Canada and the United States. The Englishman generally stays by his job, as long as his job stays by him; he does not move about nor seek new employments. And so he stays by his co-operative society, and year by year increases his holding in the association, and year by year reaps the benefits which come surely to him from his purchase dividend, or "Divi" as he calls it. But the Canadian community is extremely fluid. The west has drawn away hundreds of thousands from the older east; new industries have brought in a vast influx of immigrants; the rural districts have been drained, and the towns enormously increased. The only province that has not felt this influence, at least not to so great a degree as the others, has been Quebec, and it is significant to note that Quebec is the home of the movement in co-operative enterprise in Canada that has been most successful, namely, the co-operative peoples' banks of the Desjardins system.

Fourthly, in Canada the fight between the co-operator and the wholesaler has been particularly bitter, and, it must be regretfully admitted, mostly in favour of the wholesaler. In England and Scotland the fight has long been won victoriously by the co-operator, and for many years the great "C. W. S.", the Co-operative Wholesale Society, with its many branches, its great factories and unrivalled distributing organization, has made the co-operative societies completely independent of the wholesalers and the combines, and has been able to defend, very doughtily, all attempts on the part of strong firms to impose conditions on their handling certain lines.

And lastly, and perhaps most important of all, neither the Canadian nor the American citizen has ever really grasped the great fundamental truths and ideals of the co-operative movement. Both in Canada and the United States the cause has been discredited over and over again by fake, and often impudent, imitations of the true system. Many times we have been offered schemes "adapted to the conditions found in North America," and even, with an almost sublime effrontery, "improvements on the Rochdale system." The last three years have seen the launching in Canada of half-a-dozen bogus co-operative companies, all of which quickly and inevitably failed. One company, which aimed at setting up a chain of stores, dubbing them "co-operative" with absolutely no right whatever to that honourable appellation, failed miserably, and of course the newspapers, not unnaturally, came out with the heading, "Failure of another Co-operative Company." And so almost irreparable harm is done to the cause.

The Working of a Co-operative Store.

The organization of a co-operative store is simple. A joint stock company is formed for the purpose of raising capital, and when sufficient has been subscribed, goods are purchased and a store opened.³ The one fundamental rule of every co-operative association is that however many shares any

³Lest there be any misapprehensions on this point, it should be carefully understood that a joint stock company is formed merely for convenience of organization, but that in no other way is the joint stock and co-operative system akin.

member may hold he has only one vote at a general meeting, the idea being to keep the organization genuinely democratic. In most societies a low limit is placed to the number of shares any one individual member may hold. The second fundamental rule in all co-operative societies is the division of profits in proportion to the amount purchased at the store. A dividend is first declared on the capital stock, generally at 5%, and then the surplus is divided among the members as what is known as a "purchase dividend." For instance, if a member held \$200 worth of stock, on this he would receive 5%, and if during the year he had purchased \$300 worth of goods at the store, he would also receive a dividend on that sum, at whatever figure the committee decided for the year. If he were a member of the Workmen's Store Co. Ltd., of Dominion, N.S., he would, for instance, receive a dividend of 6% on his capital stock and 10% on his purchases, and his total returns would therefore be:—

6% on \$200 stock	\$12
10% on purchases of \$300	30

Total return from store..... \$42

Among young societies, if they are well managed, it is generally the custom to put the greater part of all profits left after paying dividends on stock to reserve, and all members are urged to leave their purchase dividends in the society until their shares have been fully paid up, and most societies aim at every member holding at least \$25 of fully paid up shares. The building up of a strong reserve is an essential point in all co-operative societies, as they are peculiarly liable to loss through withdrawal of capital by members leaving the district. To a lack of any reserve fund may be attributed many of the failures in Nova Scotia. Formerly an account was kept of all purchases by customers by means of cardboard or metal discs, stamped with dollars or cents, different shapes or colours being used for the various sums. This somewhat clumsy device has been largely discarded in favour of the far more convenient receipt slips printed by the cash register. At the end of the financial year these receipts are paid in by the members, and their purchase dividends reckoned on the total amount of goods bought at the store.

The Co-operative Store in Canada.

Although the history of co-operation in Canada is in many ways a melancholy one, yet there is much of interest and encouragement to be gleaned from a study of it. The story is not all one of disaster, many bright pages are to be found in it, and it is distinctly worth while to trace the history of the movement in the Dominion. During the last fifty-five years there have been started, in various Provinces of the Dominion, close upon eighty co-operative stores, of which nearly forty have either failed, or gone out of business from one cause or another.⁴

It is among the miners of Nova Scotia and Cape Breton Island that we find the first efforts at co-operative stores in Canada, some of the most disheartening failures, and some of the most signal successes.

The collieries at Sydney Mines, and other points on the mainland, have always been very largely worked by English labourers, and these men, who had learned the co-operative idea in their old homes, brought it out with them to the new, and as far back as 1861 the first store was founded—a store which, wonderful to relate, has been in business ever since, and is still in full vigour.

Stellarton.

The Union Association of Stellarton is unique in the fact that not only is it the first store ever started in Canada, but it is also the only store that has survived, out of many others, through all the years since 1861. For the reason of this there can be no doubt whatever—efficient and continuous management by a man trained in co-operative methods in England, who knew his work and conducted the store wisely and well as a business proposition. That man was Mr. James Mitchell, the Father of Canadian Co-operation, who was appointed manager in 1876, after having served for fifteen years as secretary. For 38 years Mr. Mitchell conducted the affairs of the

⁴This does not include the stores set up by the Grange. It is very difficult indeed to secure records of past experiments, and I have no doubt my list is incomplete. I would be very grateful if any correspondents could tell me of any attempts they may have met with in the past. The story of by-gone failures, though melancholy, is always of great interest and value.

Union Store, and retired to a well-earned rest in 1914, after having been connected with the business for 53 years.

The history of this store is one of quiet achievement and unremitting usefulness to the community which it serves. When it opened it had thirty members and a capital of \$1000, and on March 3, 1914, it had 202 members and a capital of \$16,148.76; the amount of goods paid for entitled to dividend was \$41,279.50, and the total profits for the year were \$4,264.38. Six per cent. was paid on the capital stock and the rest was distributed among members in proportion to their purchases. The rate of this dividend on purchases has fluctuated a good deal. In the first year of Mr. Mitchell's management the rate was 6 per cent., but the next year it fell back to three, but from that time the growth of the dividend was steady, and during the last decade of the nineteenth century it stood at 12 per cent., later it was fixed at 10, and in 1910 it stood at nine.

This store, as has been said already, is the only one of all the stores started in Nova Scotia during what may be called the earlier co-operative movement to survive. Besides this store there were started in Nova Scotia ten stores between 1861 and 1900, nine of which failed. The heavy mortality in 1895 and 1896 is to be attributed to the advent of the Dominion Coal Co. swallowing up the smaller companies, and thus revolutionizing the whole coal trade, some pits being closed and new conditions introduced, to which the co-operative stores could not readily adapt themselves, and were in consequence beaten out in the struggle. It will, however, be of interest to examine the record of some of these older associations and note the exact reasons for their failure. Among others started in Nova Scotia, the following may be cited as typical.

The Sydney Mines Provident Society, Ltd., of Sydney Mines, C.B., organized 1863, failed 1905. For many years it did a flourishing business, but failed to make any provision out of profits for a reserve fund. The withdrawal of capital from the business, and an inability to adapt themselves to changing conditions brought them into difficulties, and when in 1905 both store and stock were burned out the association went out of business.

The Reserve Co-operative Store Co., Ltd., Reserve Mines, C.B., commenced business 1887, failed in 1898. For some

years this store did a very good and lucrative business, and was a source of great profit and benefit to many of the workmen. No reserve fund, slackness of work for two successive winters, continuous rumours of the closing of the colliery, the withdrawal of capital by members moving to other localities, and a change in the management of the store necessitated by the death of the former manager, brought about the closing of the business.

The Little Glace Bay Co-operative Store Co. was organized in 1887, and after struggling along for seven years, finally went out of business in 1894. This seems to have been a peculiarly unhappy venture, and got into deep water almost at once through imprudent buying, which destroyed the mutual confidence of members. The usual contributing causes led to its downfall—no reserve fund, withdrawal of capital, indiscreet credit, and lack of ability to adapt themselves to changing conditions.

It would, however, be unfair to the memory of many of these little co-operative societies to brand them as failures. Several of them were in business for quite a number of years, and although beaten in the end by changing conditions in the business world, did very excellent work while in full vigour, and most undoubtedly were of much benefit to the miners in Nova Scotia. Some of the stores went into voluntary liquidation when the pits in which the members worked were closed and the population moved away.

After the virtual extinction of the co-operative store in Nova Scotia after 1896, there followed a gap of five years, when the gallant Stellarton store kept the flag flying alone, and although two stores were started, in 1901 and 1902, they both soon failed or changed their methods, and not till 1903 do we find the real beginnings of the new movement, when the Workmen's Co-operative Store was started at Dominion, N.S., and is still in full vigour. Since then the progress of the movement has been slow but steady, and the various societies are in a very fairly strong position.

The New Movement in Nova Scotia.

Two examples of successful co-operation among the colliers of Nova Scotia will serve to illustrate them all. The British Canadian Co-operative Society, Ltd., of Sydney Mines

was started in 1906, shortly after the failure of the earlier store. The members at the start were almost exclusively confined to Old Country miners, who adopted altogether British methods of co-operation. While all other societies allow credit to the amount of $\frac{4}{5}$ of the capital, this society gives absolutely no credit even to members. The society started with 32 on the roll, having an average share capital of sixteen dollars each. In its report for the six months ending Feb. 4th, 1914, it reported a total membership of 558, 128 new members having been added during the half-year and 23 having withdrawn. The share and loan capital amounted at the same date to \$34,770.81, being an average of \$62.31 per member. The government of the society is vested in a Board consisting of President, Secretary, Treasurer, and 12 Directors, who are elected annually by the members. The manager is thoroughly efficient, having received his early training in co-operative store management in Scotland.

The Workmen's Store, Ltd., of Dominion, N.S.

The failure of the several attempts at co-operation had done much to dishearten and disgust many, in fact "the stores had left nothing behind them but an odious reputation."⁵ But there were still very many workmen who had been benefited by them, and who regretted their disappearance, so in December, 1902, a few of the men employed at Dominion No. 1 colliery called a meeting to discuss the inauguration of a new store. Nineteen brave souls were present, and it was decided then and there to start an association. "There was no suitable place available for rental," says Mr. McLeod, "so our first undertaking was the building of a small store suitable for the business. We recognized we had an uphill job, but we went at it. On March 17, 1903, the total amount of capital realized was \$1,900. The business was that day opened with a small stock of groceries. On March 19 the pit, on which the few members we then had depended for their work, took fire and was out of commission for one year. A large number of the workmen had to find employment at the other collieries, necessitating their removal from the place. This retarded our progress at

⁵A statement by Mr. James McLeod, secretary of the Workmen's store.

the outset, and for the first year our sales were only \$17,519.08. This we more than doubled the next year. We extended our lines of merchandise to all the staple articles required in the household. Beginning our third year, we found it necessary to enlarge our premises, and on three occasions since we have made extensions. . . ."

"In 1911 a few of our members moved to New Waterford, the new colliery district, and one which will be the largest colliery district in Nova Scotia, but five miles from our central store. These members had profited so much by the store that they would not leave it. This compelled us to buy land and erect a building, and open a branch for them. The volume of trade in the branch has since exceeded that of the central. In connection with the central we have opened a fresh meat department."

"The company is incorporated by special act of the Provincial Legislature. The liability of the members is limited, any workman can become a member by paying an admission fee of \$1.00, and taking one \$5.00 share in the capital stock of the company, but no member can hold more than sixty shares. The profits of the business are ascertained twice a year; 10% of the profits is added to reserve fund and 6% per annum is paid on the capital at the credit of the members. The balance is divided as dividend, over the amount of payments for goods purchased by the members for the half year."

Mr. McLeod gives a most interesting little table showing the benefits received from the association by three members, the names of whom he gives. One of them had invested \$300 in the concern and as a half-yearly dividend he received \$9.00. His total amount of purchases at the store amounted to \$273.64. On this amount he received 10%, that is \$27.36. His total returns therefore from the society amounted to \$36.36 for the six months. The other two received like benefits, although having bought more at the store during the period their dividends were proportionately bigger.

Members are allowed credit to the amount of four-fifths of their capital. If they hold a lesser amount than \$25 the interest and dividend earned is credited to their capital account, until the amount of \$25 is reached. They may withdraw any amount over \$25; or if they are leaving for other parts, or are not satisfied with the business, they may withdraw alto-

gether. Mr. McLeod says with justifiable pride: "The success of our business for the first three years of its existence was so marked that the workmen of the other mining towns began to move in the same direction. Prejudice has been uprooted, opposition has been overcome, and we stand to-day the leading business in the town, the envy of the private traders, the admiration of the workmen, and sought after by the wholesalers."

The Movement in Ontario.

Apart from the quasi-co-operative efforts of the Grangers in Ontario, there were only a few fitful and fleeting efforts at co-operative storekeeping prior to 1903 when the Guelph society was formed, and five years elapsed before the next essay was made at Brantford, and another at Hamilton, both of which unfortunately were short lived. Several other failures have taken place, but on the whole the movement in Ontario is fairly vigorous and may extend in the future.

The Guelph Co-operative Association.

One of the most successful, and at the same time interesting attempts at consumers' co-operation has been carried on at Guelph, Ontario, since 1904, and is now a flourishing and financially sound business. We will therefore trace the course of this association with some care, as it shows the struggle which such an organization has to undergo before winning out. The Secretary, Mr. Bush, has written an account of the early history of this society, from which we will quote a few extracts.

"In January, 1904, the working men of Guelph felt that they were being charged excessive rates for bread, and a number of Trades Unionists, through the Trades and Labor Council, entered a strong protest against the tactics adopted by the local bakers. Finding that this did not avail them anything, and learning of another contemplated advance in the price of bread, they determined to adopt drastic measures. The result was that about twenty of these workmen, under the leadership of Joseph Danduro, formed themselves into a society for the purpose of starting a bakery. They made a canvass of all their fellow-workmen and succeeded in inducing about eighty

to purchase shares at \$2.00 each, and with this money they bought out one of the local bakers and started business."

At the outset the society met with very stiff opposition both from the other bakers and also from the Retail Merchants' Association of the town, and a very great deal of suspicion of the motives of the organizers was engendered in the minds of the working people. However, the committee persevered, a co-operative society was established, and when the first half-yearly balance sheet was issued on Dec. 31, 1904, a business of \$9,872.45 had been done.

Mr. Bush goes on to say: "Business increased as people gained confidence, and it was not long before two more bakers found it necessary to retire from business, which drifted towards the co-operative society. Let it not be supposed for a moment that it was the intention of these co-operators to drive anyone out of business, their object was self-preservation. The bakers claimed that it was necessary to advance the price of bread, but when the co-operators started to produce it the other bakers reduced the price, to drive the working man out of business. But by standing by their own convictions, these co-operators proved that under the co-operative plan the purchasers got the benefit, as the profits were returned to the purchaser where otherwise they would have gone into the pockets of the individual. Hence the increase in business was a natural consequence, and the books for 1906 indicated a business of \$20,144.76."

After this the co-operators began to feel solid ground under their feet, and new premises were obtained, the society inaugurating a grocery and butchering business, and at the end of 1907 the amount of business done was \$29,689.15.

To quote once more from Mr. Bush: "The co-operators were not destined to get a grip of the business without a desperate struggle, for in addition to the innumerable inconveniences they were subjected to by their competitors, their building was almost destroyed by a disastrous fire. This only served to urge the committee to renewed efforts and enabled them to remodel their building to suit the business. This little incident proved almost invaluable to the business, as it served to arouse the members to a sense of their responsibility, as they now had a property worth over \$8,000, and had plenty of room for

extensions, and each quarter the members allowed a portion of their dividend to remain in the treasury to help pay for the building."

Another department was now added, namely, boots and shoes, and by the end of 1908 a business of \$52,227.36 had been done.

It is not necessary to pursue the course of this society further in detail. Their report of trading in 1914 shows that on a share capital of \$5,473, their total sales were \$123,622. They had 672 members, and a reserve fund of \$5,500.

*Co-operative Coal Yard.**

It seems that since the coal miners' strike of 1902, which entailed a great scarcity and practically famine prices for coal in Guelph, there had been mooted an inauguration of a municipal coal yard to procure coal at a cheaper rate for working men in the city. The Trades and Labor Council from time to time had also contemplated buying coal by the car load direct from the mines, but were never successful in carrying the project into effect. To quote one of the members of the co-operative society: "There seemed to be a widespread feeling of injustice somewhere and remarks were frquently heard at our shareholders' meetings and elsewhere that the Co-operative Association should have a coal business." The directors of the association, therefore, began investigating cautiously the proposition, and in April, 1908, a scheme was submitted to the general meeting and unanimously endorsed. The plan adopted was as follows. Having opened up an avenue of supply from the collieries, they fixed what appeared to the directors as a fair price, and on this basis a "Coal Club" was formed. Those joining the club contracted with the association to take the amount of coal they required, and to pay for it in a period of twenty weeks, the payments being divided into a twentieth part for fortnightly payments, and a fifth part for monthly payments, thus enabling each member to choose the period best adapted to the time he received his wages. The association on their part contracted to supply the coal at a stated price by a certain time, reserving the right to put in coal when they

*From a statement by Mr. H. V. Deike, of the Guelph Co-op. Assoc. Ltd. In the Canadian Co-operator, December, 1909.

thought best. They also agreed to refund money paid in by those who desired, at any time to withdraw from the club, provided no coal had been delivered. The advantages of this method to the association were two-fold: First, it provided the money required to purchase the coal at the mines; and, secondly, it gave a fair idea of the amount of coal required. From May 1 to September 30, 1909, the association delivered 1,600 tons, the difference between summer and winter prices for coal per ton being 25 cents, but also a purchase dividend of 37 cents a ton was paid, the saving to members being thus 62 cents a ton.

The opposition to the scheme among the local coal dealers was very strenuous. The association was threatened with injunctions, and at one time the police were sent to stop the work of building a coal shed. However, they did not succeed, and the association went quietly ahead with their plans. Later a more effective form of opposition was put into practice in the form of price cutting, but by September, 1912, a friendly agreement was reached between the private coal dealers and the association whereby the coal dealers agreed to stop cutting prices, on the understanding that the society would discontinue the practice of canvassing for orders, which had heretofore been carried on by members of the association voluntarily, and was hitting the coal dealers very hard.

Preston.

This co-operative association is worthy of passing notice in that the opposition to its progress became so acute that the promoters of the association were haled before the local magistrates and there fined for being "transient traders." The association thereupon appealed to the High Court of Ontario, where the judgment was quashed, the judgment being that "In this case there is no evidence whatever that the defendants occupied the premises in question for a temporary period only." This prosecution cost the town of Preston \$400 in costs.

Co-operative Stores in Western Canada.

It cannot be said that the system has, as yet, made much headway in the Western Provinces, although there is quite a vigorous movement among the coal miners in Alberta and

British Columbia, and actually the largest business of any store in Canada is carried on at Nanaimo.

At Port Arthur a co-operative society among Finns did not survive very long, and in Winnipeg a store which was run by the Trades and Labor Council got into grave difficulties. In Saskatchewan disaster overtook a society which attempted to push its work farther than was wise, opening branches far and wide and departing from the strict principles of co-operative finance. So serious was the failure that when the Province passed the Agricultural Co-operative Associations Act in 1914, for the purpose of setting up little associations among farmers to buy supplies in wholesale quantities, it was especially provided that under no circumstances should the association do any retail trading. This was undoubtedly wise, but the blow to any hope of seeing a wide extension of co-operative storekeeping in the Province was a severe one.

Co-operative Stores Among Italians.

Starting in Coleman, Alberta, and spreading quickly to the mining towns in the Crow's Nest Pass, there is being worked out a most interesting system of co-operative storekeeping among Italians. So significant is this movement, that it will be well to study it in some detail. The procedure is as follows: Each member puts into the concern a certain amount of capital, on the average about \$40, and he is allowed credit at the store up to the full amount of this sum every month. All sales are on credit and at cost and each month a balance is struck, each member paying for the goods which he has had from the store, plus a sum reckoned as a percentage of his purchases, for the maintenance of the store. In this way a member who buys largely, and so presumably reaps the greater benefit, will pay more for maintenance than one who has bought little, at present the usual charge being about ten per cent. on the amount purchased.

The system appears to be working excellently and is spreading rapidly. It is to be noted that this is not the Rochdale system at all, the very essence of that system being sales for cash. The cost system, as it may be called for lack of a better name, is not a bad one, in fact in many ways it is excellent, and well adapted to the conditions in the west. It must,

however, be fully understood that it is utterly unsuitable to a poor community, where members cannot put up a sufficient sum to cover their purchases for a month. When all other schemes are considered, we are left to the inevitable conclusion that for the humbler members of society in the great cities, the Rochdale system is the only possible one, as has been proved by sixty years' experience in England. The cost system has been tried in England but failed, it not being found suitable to English conditions. The great disadvantage lies in the fact that the gain is not obvious and the saving is not conserved. When workingmen have money coming in from a society every three or six months its advantage is obvious and concrete, and the dividend is available for accumulation.

The Co-operative Union of Canada.

No review of the co-operative store movement in Canada would be complete without a mention of the activities of Mr. George Keen, of Brantford. This gentleman, who learned the benefits of the system in England, has for the last seven years carried on an active propaganda for the spread of the co-operative gospel. Entirely without remuneration and often at pecuniary loss to himself, Mr. Keen has laboured with faith and enthusiasm and has been very fairly successful in widening the scope of the movement. He is the editor of the *Canadian Co-operator*, a very bright little monthly journal published at Brantford, and Mr. Keen is recognized as the best authority on the co-operative system in Canada. Through his efforts the Co-operative Union of Canada was formed in order to unite the various societies scattered about the Dominion, and also to forward the good work by lecture, pamphlet and newspaper article. The Union, which was formed in 1909, has for its objects the following:—

1. The recognition by affiliation with the Union of all bona-fide co-operative associations in the Dominion of Canada, in order that the public may be able to distinguish the same from institutions which are now, or may hereafter be organized with a co-operative title for purposes of personal or private advantage or profit.

2. The propagation in the Dominion of co-operative principles.

3. The conciliation of the conflicting interests of the capitalist, the worker, and the purchaser, through the equitable division among them of the fund commonly known as "profits."

4. The prevention of the waste of labour now caused by unregulated competition.

5. The cultivation of a spirit of mutual service by self-abnegation, expressed in the motto, "Each for all and all for each."

The Union had, in November, 1915, 22 co-operative associations in affiliation with it, distributed among the various Provinces as follows:—

Nova Scotia	4
Quebec	2
Ontario	7
Manitoba	2
Saskatchewan	1
Alberta	3
British Columbia	3

Co-operation among Socialists.

Some interesting, if not very successful, experiments in socialistic co-operation have been connected with the name of M. Albert Saint Martin of Montreal. In 1905 a group of socialists, of whom M. Saint Martin was the central figure, started a co-operative store. Being enthusiastic students of Esperanto, the founders restricted membership to those who could speak that so-called language. The store bought and sold for cash, all sales being at 10% above cost price. The society flourished for about six months, until the manager did some reckless buying and was found to have misappropriated some of the funds of the store. Following these disasters the society went to pieces.

M. Saint Martin's next essay in co-operation was in 1907, when, in company with a group of socialists, he bought an old mansion wherein a socialist colony was to be inaugurated. Five families agreed to live together on a communal basis. Kitchen, dining room, library and sitting rooms were common to all, and each family had bedrooms allotted to it. Food was provided for all, and each of the women of the colony was supposed to take turns in cooking, house-cleaning, etc. A back kitchen

was transformed into a co-operative grocery for the general public, and all profits of the store, and all earnings of the men of the community were paid into the common fund. This strange community flourished, more or less, for about nine months and then ended in the inevitable dissensions and failure.

In 1908 M. Saint Martin's most enduring and successful experiment was launched in the shape of a socialistic co-operative colony, appropriately named La Kanada. A concession of 5,000 acres was secured from the Government on the Kekamak river, in Labelle County. One of the objects of this colony was to solve the problem of the unemployed. There are three kinds of members: first, Propaganda members, who take one share of \$100 payable by instalments of 25 cents a month; second, active members, who work on the land of the colony, and thirdly, Life members, who pay \$2,000, and in exchange can live in the colony and may work or not as they please.* There are at present ten members working on the land, and they have about sixty acres under cultivation, although they are occupying nearly 2,000 acres. Two houses have been built, and four cows, a few pigs and hens have been acquired. Recently a saw mill has been successfully installed. The colony, while it has not solved the problem of unemployment, is yet fairly flourishing.

Conclusion.

What then are we to say of the probable future of the movement for co-operative stores in Canada? On this point, it is very difficult to give a definite opinion. At present the prospect is not very bright and many of the little societies are passing through troublous times, and the mortality is fairly high. However, the future is not without hope, on the contrary the future is very hopeful indeed. There is undoubtedly a strong current setting, both in the United States and Canada, towards co-operative methods in agriculture, and it may well be that an appreciation of the benefits of working co-operatively in the rural districts will lead towards greater attention being paid to the organization of co-operative stores. It may also be that the enforced economies, that will be our portion

*At present there are no life members.

after the war, will lead our citizens to pay more attention to the desirability of saving even cents. Again, if Canada receives a great influx of immigrants after the war, it may well be expected that many will bring their co-operative faith with them; of what may be termed a native co-operative movement in Canada there is little or no hope. The movement, which seventy years ago owed its origin to those twenty-eight inspired flannel weavers of Rochdale, has a great lesson to teach Canada. That we should learn that lesson must be the hope of every student of the co-operative system.

H. MICHELL.

I must acknowledge my indebtedness to Mr. Keen. His unfailing courtesy in giving me information has always been deeply appreciated by myself. I must also thank Mr. D. G. Fraser, of Natal, B.C., for valuable information.

CURRENT EVENTS.

INTERNATIONAL LAW AND NEUTRAL COMMERCE.

International law has many questions to deal with, but two are of primary importance; the first concerns the usages of war relating to captured enemies, or invaded districts, or the methods of carrying on warfare; the second is maritime law as it affects neutral commerce during the continuance of a war. The first reflects and to some extent determines the standard of civilization an age has attained and we come to regard ourselves as morally superior to early ages mainly because we no longer make slaves of the population of a captured town, as the old Greeks did, nor devastate an enemy's territory quite as ruthlessly as was ordinarily done in the wars of the 16th and 17th centuries in Europe. Indeed, if we were to judge our age by what we read in the resolutions and agreements adopted at Hague Conferences, we should place it very high. And it certainly is a mark of progress to have a public profession of such a standard even if it does not always succeed in asserting itself amongst us. The moral authority of the Hague Resolutions has not been abrogated although German soldiers were allowed to act like Landsknechts of the 16th century in Belgium and France, and German sailors to sink merchantment crowded with helpless women and children. That is, it has not been abrogated as long as the civilized world agrees to brand such actions with the stigma of dishonour and barbarism. As long as that is done, the humanitarian standard represented by the Hague Conferences still exists as that of our civilization, and even the German conscience, hardened as it is by arrogance and ambition, will eventually comprehend that there are circumstances in which German *Kriegsraison* or the necessity of war is not an adequate answer to the protests of humanity. One thing only would lower that Hague standard, and that would be the permanent success of the German arms and of the monstrous aggression which the German philosophy of life and war have made on the spirit of our time. One of the greatest sins of our literature during the last century has been the kind of condonation given to Napoleon for a similar ruthlessness, under a similar pretext of

bestowing higher culture and polity on the nations, as if his cruelties and unscrupulous lies and professions were to be lost sight of in the glory and glamour of his career and in the grandiloquent professions of the benefits he proposed to confer on humanity. There were none who heaped more scorn on that egotistical grandiloquence than the German leaders of the war of liberation, but there is not a sentence ever spoken by Stein or Gneisenau or Niebuhr or Blücher in indignant denunciation of the reckless and menacing ambition of Napoleon and of the French nation of that time that does not read now exactly as a condemnation of modern Germany. Even the oft quoted case of poor bookseller Palm may be paralleled with that of Miss Cavell.

The law of humanity is eternal, and though the usages of different ages and countries vary with social and political conditions, it speaks with essentially the same voice in a Homer, a Cicero or a Grotius. Homer's pathetic lines on the fate of a captured Andromache are addressed to the same sense of humanity to which Grotius appeals in his plea for a humane treatment of captives. It is true that that sense of humanity is often lost for a time in the passion of a fierce conflict and it is a matter of history that high religious enthusiasm has made kings and statesmen act with ruthless severity. But the ruthless cruelty of the modern German is founded on nothing deeper than a theory of war which his Clausewitzes and Disfurths have elaborated for him mainly out of the worser features of the war policy of Napoleon, who after all threatened oftener than he acted. It is part of a system deliberately taught by German military authorities and embodied in their manuals of instruction for officers. In the Book on the usages of war recommended by the General Staff (*Kriegsgebrauch im Landkrieg*) it is set down amongst other maxims of the same kind that, "*Ruthlessly* to employ the necessary means of defence and *intimidation* is not only a right but a duty for every commander of an army" (p. 115). *Kriegsmanier* and *Kriegsraison*, a theory, that is, of the usages and necessities of war, that is all the justification the German gives of his ruthless treatment of Belgian and French populations and his submarine atrocities against merchant ships often with their helpless freight of women and children. That along with the use of poisonous

gases are his characteristic contributions to modern warfare. It is not possible any longer to mistake the character and spirit of a nation that has the credit of introducing such deviltries into our civilization. The conduct of the German can be condoned neither as that of the savage nor as that of the man in hot blood; it is the logical outcome of a system, of a theory which, like other theories of his, political and religious, is clearly revealing itself as the product of a false and overdriven philosophy of life. For nothing has contributed so much, I think, to turn the moral force of the world to-day against him as his methods of warfare. Even Sweden, always his only real friend in Europe, quailed after the *Lusitania* incident and all her leading thinkers and writers joined in a public and formal protest against that foolish piece of barbarity.

It is from this point of view that the formal protests of President Wilson as the official representative of the only neutral nation strong enough to dare raise its voice must be regarded as of high value, to say nothing of his refusal to weaken that attitude of protest by allowing matters of minor importance and more doubtful in character, such as treatment of contraband, to assume an equal place in diplomatic controversy. After all it is not a small thing that the United States should go squarely and uncompromisingly on record against the policy of ruthlessness, even though the matter should never go beyond diplomatic protests. The Allies can hardly expect more in the circumstances. It is a question for Americans themselves whether they consider the issues of this great conflict so clear or their own wrongs so great as to call for action. But I could wish that President Wilson had not answered those historic messages of the lion and the lamb (the lamb already lying pretty well torn up on the ground), in precisely the same terms. But there was so much we did not realize then, at the beginning of this war, and President Wilson was not the only prominent American, I fancy, who would like to have a chance to remake the speeches he then made.

But while the humanitarian side of international law is its most important aspect for civilization and has its basis in universal and eternal principles upon which mankind may agree, there is also a commercial aspect of international law

which though not so important morally, has always given rise to more diversity of opinion and upon which it has always been more difficult to reach a general agreement. Maritime law as applied to neutral commerce during war has always been a variable and unsettled matter, partly a matter of pure convention or convenient arrangement and partly varying inevitably with new conditions of warfare and trade. The tendencies of modern warfare have been to recognize more and more clearly the close connection between military strength and commercial resources, and the consequences have been that modern warfare has had to recognize in a constantly increasing degree the economic factor in war.

Grotius on the Freedom of the Seas.

At the end of the 16th century, the Dutch were fighting desperately for their independence against Philip II of Spain, and England, recognizing clearly what was involved in the world-wide scheme of domination pursued by Philip, with a relentless absolutism and the Inquisition behind it, was supporting the Dutch with money, ships and troops—Elizabeth kept a small English army for years fighting under Prince Maurice in Holland—yet during this long and fierce contest the Dutch never ceased to claim that it was proper and lawful for them to maintain their shipping trade to Spanish ports, and regularly carried not only provisions but naval munitions like powder and cordage to the Spanish fleets. Indeed they helped materially in fitting out the great Armada, although it was directed almost as much against themselves as against England. And very loud are their complaints to Queen Elizabeth when a Frobisher or some other English seaman overhauled a Dutch ship coming out of Cadiz and made a prize of her cargo in whole or in part. As great sea-carriers the Dutch had very liberal ideas on this subject and the curious thing is that Elizabeth and the English Privy Councillors did actually grant them a considerable degree of freedom in this trade with the common enemy.* In fact, Grotius in his early work, *De Jure Praedae*, expressly lays it down that war does not neces-

*See the diplomatic correspondence quoted by Motley, History of the Netherlands, Chap. xxvii.

sarily interrupt commerce with the enemy ("mercaturam inter hostes non necessario tolli." Chap. xi).

That early work was never published by Grotius, but it served as the basis of the maturer book which he put forth later in 1623, the famous *De Jure Belli et Pacis*, and its twelfth chapter was printed in 1608 as a Dissertation on the Freedom of the Seas (*Mare Liberum*). That book is an interesting specimen of the controversial style and learning of the time. Naturally it is in favour of the widest freedom of trade which he founds on a conception of natural right or what is in accordance with human reason: "The Dutch have a right to trade with all nations for God has not chosen to furnish all places with all the things which man needs from nature." Commerce therefore is of divine providence. Has not Seneca said that "the most beneficial gift of nature to mortals is that mutual commerce is necessary for them?" . . . "And this right belongs to all people equally, and there are famous jurists who even go so far as to deny that any Prince or Commonwealth can make general prohibitions preventing others from having access to their subjects and trading with them." And Grotius supports his view by appropriate quotations from Virgil and Horace. Then he states the fundamental principle on which he bases his doctrine of the freedom of the seas: "Those things which cannot be occupied or are never occupied cannot be the property of any one, for all property commences in occupation, "eas res quæ occupare non possunt aut occupata nunquam sunt, nullius proprias esse posse, quia omnis proprietas ab occupatione cœperit." And here he quotes Cicero and a line of Ovid, *Quid prohibetis aquas? usus communis aquarum est*. And he supports this by an appeal to the freedom of the air, an appeal which is somewhat weakened in our day by the laws regarding the passage of military aeroplanes and Zeppelins over neutral countries: "What is common to all, belongs to none. The air is amongst this class of things both because it cannot be occupied and because its use is common to men."

But all this old-fashioned learning and argument of the *Mare Liberum* and the *De Jure Praedæ* were directed, not against English claims and pretensions as Professor von Schulze-Gævernitz rather meanly and unfairly suggests in an

article to the New York Evening Mail,* but against the immense claim then made by the Spanish and the Portuguese (who were at that time subjects of Spain) to a monopoly of the trade in the Indies, a monopoly which they claimed partly in right of discovery and partly in virtue of the Papal Bull of Alexander VI, which granted them exclusive right of commerce there. Grotius gives the whole history of the quarrels between his countrymen and the Portuguese over this matter. The Portuguese claim, he writes, that no one but themselves has a right to sail to the Indies for the purpose of trading (*ne quis praeter se ad Indos mercandi causa accedat*). But in spite of these claims bold Dutch skippers had begun some fifteen years before Grotius wrote to find their way to Java and the Moluccas for purposes of trade and did not hesitate even to attack and make prizes of richly laden Portuguese or Spanish carracks. It was precisely to defend such an act of prize-taking on the part of a Dutch vessel that Grotius at the instigation of the Directors of the Dutch East India Company wrote his first work on international law, the *De Jure Praedae*, and it was four years afterwards when the negotiations began for the truce or peace with Spain, that he published the twelfth chapter of that work under the title of *Mare Liberum*, (with the secondary title *sive de Jure quod Batavis competit ad Indicana Commercium Dissertatio*). Grotius himself states that he publishes it to encourage his countrymen to maintain their rights against Spain in the negotiations about to begin. "At cum post aliquanto ab Hispanis spes aliqua patriae ostentaretur res iniquissima, ut Indiae commercio abstineremus, partem ejus commentarii . . . seorsum edere statui maris liberi nomine." That was the origin and intent of Grotius' work on

*Here are his words: "This picture (Dutch Ships Bringing in an English Frigate) like all other Dutch seascapes of that period, reminds one of the time when Great Britain's naval supremacy had not yet been established and accepted beyond challenge. In those days an Admiral Tromp swept through the channel with the symbolic broom at his mast-head. A menacing De Ruyter ventured to the mouth of the Thames. A Hugo Grotius boldly demanded 'the freedom of the seas', the equality of all on the sea, the highway of nations. That was the noonday of civilization! In the background was the seventy years' struggle for freedom—a struggle between a hopeless minority and a world embracing despotism. . . . England insisted on the punishment of Grotius for daring to demand free seas, etc." This article reprinted in the Current History of the *New York Times* for December last) is a characteristic specimen of the many childishly sophistical productions which German professors of reputation have sent over to the American public.

the freedom of the seas. So far from being written against England, it was written when England was an ally and protector of the Dutch against Spain. Grotius even, I think, quotes English opinion as supporting his views in this particular controversy.

But conditions change and opinions change with them. Some years later the Dutch with their growing sea-power had pretty well succeeded in driving the Portuguese out of those eastern seas and had in their turn set up a monopoly of their own forbidding the natives of the spice islands to sell or even to produce any spice except what Dutch ships required. In 1621 therefore when Grotius lay in prison—he was involved in the fall of the Olden-Barneveld party—opinion in Amsterdam was apparently as little favourable to his doctrine of the freedom of the seas as it was to him personally. At least so the learned Selden says in his *Mare Clausum*, and notes a passage from a work of Grotius in defence of the Olden-Barneveld regime in which the latter narrates how the English ambassador on some public occasion was incited by his enemies in Amsterdam “to say something against him as he lay in prison” (“*ut contra me jam captum aliquid publice diceret*”), but could find nothing else to say, except that he was the first assertor of doctrines (in this case apparently open or unrestricted rights of fishery in the North Sea) for which he deserved to lie in prison as an example to others. I suppose that is all that is behind Schulze-Gævernitz’s statement that “England insisted on the punishment of Grotius for daring to demand free seas.” The general situation was that the Dutch as long as they were friends of the English encountered little opposition to their fishing off the English coast.

But Grotius himself in his greater and maturer work *De Jure Belli et Pacis*, which he wrote in 1624 in exile, has modified his old teaching in the *Mare Liberum* very considerably. When he wrote the earlier work he was a very young man with more erudition than experience and was writing to defend Dutch aggressiveness in the Eastern seas; now he is past forty with much sobering experience as a politician and diplomatist. Evidently he realizes better the complicated questions involved in maritime law, especially in the policing of adjacent seas—so necessary in those days of universal privateering and piracy—and in the control of what we

now call territorial waters. These questions had begun to present themselves in their modern aspect as the conditions of trade and war grew more complicated. The disputes over rights of fishing grew keener and diplomatic correspondences arose over the habits of the Dutch navy in hovering round the English coast and attacking Spanish ships in English waters. Indeed, Grotius has very little to say on the freedom of the seas in his later work, which is mainly devoted to other questions such as the interpretation of treaties, the definition of contraband and the laws of humanity in warfare. He makes none of the absolute and universal statements so common in his earlier work. His chief utterance on the subject and almost his only one is the following paragraph from the 3rd chapter of the Second Book. After treating of the occupancy of rivers, he says:

In the same manner the sea appears capable of being made a property by the power possessed of the shore on both sides of it; although beyond those limits it may spread to a wide extent, which is the case with a bay and with a strait beyond each of its outlets into the main sea. But this right of property can never take place where the sea is of such magnitude, as to surpass all comparison with that portion of the land which it washes.

The question of the right of controlling territorial waters and adjacent seas, and the rights of fishery therein, were the really practical issues discussed in Selden's *Mare Clausum*, published in 1835. The question was a burning one, for the English were then beginning to make the Dutch pay round sums for the North Sea fishing. Seldon's treatise is an interesting specimen of old-time controversies in which we see new maritime questions such as the definition of territorial waters emerging from amongst older and antiquated forms and claims of jurisdiction. His claim for England's right to control 'the Narrow Seas' is founded on the need of policing them and on the power and traditional jurisdiction which England had always possessed and exercised in that respect,* but still more on ancient rights and treaties which run back to the days when

*See, for example, *Mare Clausum*, B. II, Chap. 29.

the Norman and Angevin kings of England were rulers and overlords, as Dukes of Normandy and Aquitaine, on both sides of the channel. The famous *summorum velorum demissio* or lowering of the topsails to a king's warship had its origin, according to Selden, in that local sovereignty which was nowise different from that claimed by other states in those times, for example, by Venice in the Adriatic. Selden also claims the free right of fishing for the English as far north as Iceland and Greenland on the ground of ancient treaties with Danish and Norse kings, and he concludes his lengthy treatise with a vague rhetorical flourish which extends the bounds of British sovereignty into the vast northern and western ocean (in aperto et vasto septentrionis atque occidentis oceano), and he rather neatly quotes a poem by Grotius addressed to James I which recognizes that extensive claim

Quae meta Britannis
Littora sunt aliis; regni accessio tanti est
Quod ventis velisque patet.

When the contest with Spain ended Holland was not only the dominant Power in the Indies but the greatest naval Power in the world. Almost the only competitors now of the Dutch in Eastern seas were the English, and of course the quarrels and bickerings between Dutch and English traders in the East soon became as bitter as they had been between Dutch and Portuguese. For the Dutch were just as much bent on maintaining their monopoly as ever the Portuguese had been. In 1623 they drove the English out of the island of Amboyna by what the English called a "massacre" of their merchants there. Later on, after the fall of the Royalist cause in England and the execution of Charles I, Holland became the great refuge of the fugitive English Royalists who with the support of the Orange party there were a constant menace to the new Commonwealth, and during a tumult murdered the English Parliament's envoy to the Hague. It was a Dutch scholar also of European fame, Salmasius, who had come forward to challenge the action of the English people in beheading their king. No doubt commercial rivalry was an underlying cause of the war which ensued, as it nearly always was in all the wars of the sea Powers. But there was also great political irritation on both sides and in 1651 the English Parliament passed a protective Navigation Act which prohibited imports into

England except in English built ships. This was a severe blow to the carrying trade of the Dutch. It was a harsh policy though quite a legitimate one and certainly not worse in principle than the action of the Dutch three years before in closing the Scheldt and ruining the seaport of Antwerp. Long afterwards indeed precisely the same protective legislation was adopted by the United States against England at the close of the war of independence.

Thus began the first war between the Dutch and the English. It lasted two years with varying fortune on each side, Van Tromp and De Ruyter being no bad match for Blake and Monk. Later on, when war once more broke out, during the negligent administration of Charles II, the contest on the sea between the English and Dutch still remained indecisive, the Dutch at times even obtaining the mastery of the seas. Later still, in the third and last war, the Dutch navy under the gallant De Ruyter held its own fairly against the combined fleets of England and France. It was from no specific naval inferiority, therefore, at this time, but from internal decay and exhaustion that the Dutch Republic eventually lost its rank amongst great naval Powers. Captain Mahan writes of her navy in this third sea-war with England: "The battle of the Texel (1673) closing the long series of wars in which the Dutch and English contended on equal terms for the mastery of the seas, saw the Dutch navy *in its highest efficiency*, and its greatest ornament, De Ruyter, at the summit of his glory." (*The Influence of Sea Power upon History*, p. 157.)

Now we may read another paragraph from Prof. Schulze-Gævernitz's remarkable history of the struggle for the supremacy of the seas:

"Up to this time [*he has mentioned no particular time, as usual, but his text seems to refer to 1651, the date of the Navigation Act*] the Dutch had had no navy, and armed some of her merchant ships to meet emergencies. But wool-exporting England built the first specialized man-of-war. Those ships were superior to those of their foe, especially in artillery. With this new and superior weapon England imposed upon the Dutch the Navigation Act, which ruined Holland's trade as international middleman. As a token of their humilia-

tion Dutch ships were obliged to dip their colours to the English flag."

That is how a German professor of to-day writes history, without balance, without discrimination, concealing and confusing with childish cunning the historical and chronological connections of events and giving to casual incidents or expressions the kind of exaggerated importance they assume in the oppressed brain of the monomaniac. And they think that that kind of writing can save, or even help, Germany and her cause.

But any way all this old controversy about the freedom of the seas, *Mare Liborum* and *Mare Clausum*, has long been obsolete and irrelevant to modern conditions. The essential question in it at that time was the free commerce of the seas and the rights of traders *in time of peace*, and all the world knows that for long no nation has been more liberal than Great Britain in granting free access to her ports throughout her wide dominions and equal terms with her own traders to all countries. And mightily have the Germans profited by that same liberty. None but the naive pedants of old Deutschland would think of raking in those old controversies for material relevant to the questions of to-day. Spaniards, Dutch, Venetians, Portuguese, Genoese, Hansa Leagues, French, English—they have all laid claim to exclusive trade and maritime dominion in their day and also at times have refused to recognize such claims in others, and have fought for it both ways as their interests stood at the time. What is important now is the maritime law which may be enforced in time of war especially in the case of neutrals who are attempting to trade with belligerents and thereby increase the resources of the latter for war. And it is a curious but easily explainable fact that while the trade policy of nations during peace has been tending to become ever freer and opener, international policy and the practice of nations during war in the case of neutrals doing trade with belligerents has tended to become ever more stringent. The reason lies in the immense and expensive supplies of the most varied kind, from foodstuffs and clothing to materials for explosives or field transport, required in modern warfare, and in the greatly increased appreciation of the economic factor and of economic resources in war. What a difference between the Dutch in the 16th century claiming the

right to be unmolested by their English allies in carrying provisions and munitions to the enemy's fleets and the delicate and difficult discussions over contraband which finally resulted in the Declaration of London six years ago!

The Declaration of London.

When Great Britain invited the Powers to a Conference in London in 1908, the object was to frame a code of rules which might serve to guide the decisions of an International Prize Court to be established at the Hague. For without such a code there would be no fixed principles for the Court to go by. There was no general agreement amongst the different Powers either in opinions or in practice; on the contrary, there was a very great diversity. From the various memorandums sent in by the Powers as suggestions to the Conference it is evident that there was very little, outside the decent usages of humanity, that was universally recognized as international law in the treatment of neutral shipping which carried or was presumed to be carrying contraband. There was not even complete agreement as to what should be considered contraband or how it should be classified. Austria-Hungary was against declaring anything contraband except what was exclusively used for purposes of war and was especially opposed to the general practice of belligerents adding to the list by declaration. Holland also would abolish conditional contraband and would limit narrowly the doctrine of the continuous voyage by which contraband might be seized on its way to a neutral port. Holland was also strongly against according a belligerent the right of sinking neutral prizes on any plea, instead of bringing them into court for proof and condemnation. The United States would admit destruction of neutrals carrying contraband only in cases of plague, unseaworthiness or want of a prize crew. The American opinion was also strongly in favour of the full application of the doctrine of the continuous voyage against neutrals whatever transshipments or changes might intervene; the delegates also declared that the constitution of the United States did not allow of the decisions of their Supreme Court being formally submitted to the review of an International tribunal; but it was agreed that such a tribunal might try any case *de novo*. Germany would extend the list of absolute contraband by the addition of material for explosives of every kind

and would also extend the right of seizing conditional contraband (foodstuffs, etc.) when bound to ports which served as a base of supplies. Germany also stood out for the right of destroying or sinking captured neutrals, if bringing them into a port "might compromise the security of the war-ship or the success of her operations," and opposed the article exempting neutrals from search when convoyed by a war-ship of their own nationality. France was stringent on the question of contraband and would extend the list to everything capable of being used in war. France was also clear that the destination of the goods, and not the ship, should decide the character of the contraband. Neutral prizes might be destroyed for mere security but the case should be altogether exceptional. Japan was against such destruction of a neutral before condemnation. Great Britain was strongly in favour of maintaining the lists of absolute and conditional contraband as they had been drawn up at the previous Hague Conference and was against Germany's proposal to make materials for explosives contraband as it would injure the mining industries of her colonies. The British delegates indeed urged and obtained the inclusion in the Declaration of an absolutely "free list", in which metallic ores, cotton and other things were placed.

It is easy to see from the above brief summary that each Power urged the point of view which it considered most favourable to its situation and interests. Germany thought of herself mainly as a belligerent, Great Britain and Holland mainly of their interests as neutrals. The United States, in discussing the doctrine of the continuous voyage, thought of their relations to the numerous States in the southern part of their continent and their past experience with them, and had evidently besides some hesitation in submitting themselves entirely to the decision of an International Prize Court which would be mainly European with one or two South American representatives.

The chief object of the Conference being to define and limit the rights of belligerents to interfere with neutral traders, the important Resolutions fell under four heads:

- (1) The enumeration of articles of contraband.
- (2) The doctrine of the continuous voyage.
- (3) The rules regarding blockade.
- (4) The destruction of neutral prizes at sea.

Lists of Contraband.

The final resolutions of the Conference regarding contraband resulted in the drawing up of three lists, one of *absolute contraband*, being munitions or articles used exclusively in war (although horses and draught animals were rather illogically included); one of *conditional contraband*, or of articles (foodstuffs, clothing, wire, machine materials) over which belligerents were to have more limited and conditional right of seizure, and, lastly, a *free list*, consisting of articles which were not to be declared contraband at all. The critical part of the discussion related to the application to contraband of the doctrine of the continuous voyage according to which in its full rigour contraband might be seized even in a neutral vessel on its way to a neutral port, and even though it was to be transhipped or discharged at that neutral port. The delegates from the United States were the firmest and strongest assertors of this doctrine which was in accordance with American practice in the past. During the Civil War the United States Government had seized goods in neutral ships on their way to neutral ports as presumably destined for the enemy. The position at times presented mixed features of blockade running and contraband carrying, but in the case of the *Bermuda* the American judges laid down the following general rules: "That contraband is always subject to seizure when being conveyed to a belligerent destination, whether the voyage be direct or indirect," and "That ultimate destination alone justifies seizure of contraband."

Mr. Seward, then Secretary of State, defined the attitude of his Government on this question in the following words, which Sir Edward Grey very appropriately quoted in his reply to the American Note of December, 1814:

Neutrals engaged in honest trade with Matamoros must expect to experience inconvenience from the existing blockade of Brownsville and the adjacent coast of Texas. While this Government unfeignedly regrets this inconvenience, it cannot relinquish any of its belligerent rights to favour contraband trade with insurgent territory. By insisting upon those rights, however, it is sure that that necessity for their exercise at all,

which must be deplored by every friendly commercial Power, will the more speedily be terminated.

At the Conference in London the discussion on the subject of the continuous voyage was opened by the reading of an amendment from the German delegation proposing the abolition of that rule. Prof. Wilson, on behalf of the United States delegation, opposed this suggestion and read to the Conference the text of the decision of the United States Supreme Court on the subject, as follows:

“Interposition between the point of departure and the enemy destination has always been a stratagem of carriers of contraband and of those who seek to violate a blockade. But this interposition does not protect them when the ultimate destination has been established. The transport from one point to another remains a continuous one as long as the intention exists without change, whatever may be the nature of the stoppages or of the transshipments which intervene,” (“quelle que soit la nature des arrêts ou des transbordements qui interviennent”).

And he added that “this opinion of the Supreme Court has been affirmed many times and constitutes the policy adopted by the United States of America.” (Proceedings at the International Naval Conference, p. 163).

The application of the doctrine of the continuous voyage was also supported by France and Russia. The final result was that the Conference, having already agreed on the division of contraband into two classes of absolute and conditional contraband, allowed the principle of the continuous voyage to be applied to the former but not to the latter. (*Articles 35 and 35*).

This involved a great limitation on customary practice. In 1885 France had treated rice as absolute contraband on its way to Chinese ports, and in 1904 both Japan and Russia had taken the widest latitude in seizing contraband, the latter Power practically declaring all materials and stuffs except fancy goods contraband “if destined for the enemy.” Their Prize Courts, however, did not always rule quite so strictly.

It is obvious that the new Resolutions of the Declaration placed an island Power at a disadvantage as compared with a Continental Power; for while a continental Power could easily receive supplies through adjacent neutral ports, of what was called conditional contraband, such as foodstuffs, forage, clothing, railway material, barbed wire, materials for telegraphs and flying machines, etc., all foodstuffs and goods of this class could be readily seized if on their way to a belligerent island Power under the general conditions which make conditional contraband liable to seizure, viz.: (1) if it is for the use of the armed forces, (2) if it is destined for a Government department, (3) if it is consigned to a contractor resident in the enemy country and known to supply such articles to the Government, (4) if it is consigned to a fortified place or place serving as a base for the armed forces of the enemy. (*Articles 33 and 34*). It was urged by Germany that this last condition should be extended to include a place serving as a base of supplies (*de ravitaillement*) to the enemy, and accordingly in the Report which accompanies the Articles of the Declaration it is so explained to mean a base "whether of operations or supply."

Under these rules a country like Germany could import all the foodstuffs and other conditional contraband she liked with entire facility through neutral ports like Rotterdam or Copenhagen, only a few hours away by rail. But every cargo of such goods on its way to the ports of an island like Great Britain would be liable to stoppage and capture. There would be a presumption against the island ports all the time and if Great Britain were at war with a naval Power or Powers of equal strength, her position would be very much that of a man fighting with one arm bound against a man who could use both of his. Of course there was a "free list," of cotton, wool, jute, rubber, hides, metallic ores and other things which could not be declared contraband. The British delegates in their report to Sir Edward Grey specially congratulate themselves on having obtained this free list as something which "would place it beyond the power of belligerents in future to treat as contraband the raw materials of some of the most important of our national industries." (*Correspondence and Documents*, p. 95). All the same there would not as a rule be many cargoes bound for the British Isles which would not be liable

to stoppage and seizure as conditional contraband. The British in fact were relying, as Sir Edward Grey virtually admitted, on their naval power to protect neutral commerce as well as that of their own ships to their own ports. Nobody seems to have thought of the possible operations of submarines in this connection.

The Conference did, however, recognize in some degree, the fact that the geographical position of one belligerent might render the prohibited application of the continuous voyage to conditional contraband unjust to the other belligerent, and accordingly it declared that Article 35 did not apply "where the enemy country has no seaboard." (*Art. 36*).

The Rules of Blockade.

The old doctrine of blockade had required that it should be maintained by an encircling line of stationary warships a certain distance off the blockaded coast, but though Holland made some attempt to retain the old rules, it was recognized by the Conference that modern mine-laying operations and the changed conditions of naval warfare with the new relations of patrol cruisers equipped with wireless to the main fleet required a readjustment of the old rules. Only the essential condition of blockade, therefore, was retained that it should be "effective," and in further definition of effectiveness, it was added, as suggested by Germany, that "it must be maintained by a force sufficient really to prevent access to the enemy coast-line." (*Article 2.*) But the question of effectiveness, it was seen, might still remain a delicate one and the best the Conference could do was to declare that the question whether a blockade was effective or not was "a question of fact." The accompanying Report or commentary further explained that this question of fact would be one to be decided by the International Prize Court to be established. In fact, as I have already said, it was in view of the establishment of such a Court and for its guidance that these resolutions were being framed. It was also embodied in *Articles 1 and 18* that a blockade must not extend beyond the ports and coasts of the enemy, nor bar access to neutral ports or coasts. A vessel attempting to break a blockade was liable to condemnation as also was her cargo, unless the shipper could not have known of the intention. (*Article 21.*) The Conference did not at-

tempt to fix any precise limits for "the area of operations" in a blockade. It declared it might be "rather wide" and was always to "be limited by the condition that effectiveness must be assured." (*Article 17.*)

The Destruction of Captured Neutrals.

An important question before the Conference was as to what circumstances might justify a belligerent in destroying a neutral prize at sea. Some of the Powers—Britain, Holland and Spain in particular—were opposed to the destruction of captured neutrals on any plea; others, the United States for example, would allow it only in extreme cases such as the presence of plague or unseaworthiness. Other Powers, Germany in particular, stood out for the right of a belligerent to destroy a neutral if the captor considered himself or the success of his operations endangered by preserving the neutral. The general rule ultimately laid down in the Declaration was embodied in the following Resolution (*Article 48*):

A neutral vessel which has been captured may not be destroyed by the captor; she must be taken into such port as is proper for the determination there of all questions concerning the validity of the prize.

That article was meant to fix the general rule in its strongest form, but its force was much weakened by Article 49 which immediately followed it and which allowed the belligerent "as an exception" to destroy a captured neutral which would be liable to condemnation, if preserving her "involved danger to the safety of the warship or the success of the operations in which she is engaged *at the time.*" Article 50 provided that in such a case all persons on board the vessel to be destroyed must be placed in safety and that the ship's papers and all the documents needed to prove the validity of the capture must be taken on board the warship. The accompanying report laid stress on the facts that such destruction was to be an exceptional case and was lawful only if the vessel was liable to condemnation upon the facts of the case.

There is a strong attempt to limit and safeguard the permission to destroy captured neutrals in these resolutions, and the British delegates seem to have considered that they had practically obtained a renunciation of the right. There was

some reason in that view as long as there was a likelihood of an international tribunal being set up with authority to enforce these rules. But as the case is now, Article 49 has only the air of legitimizing the outrages of German submarines and leaving neutrals with less room for protest. On the other hand, something no doubt had to be conceded to Powers which had few or no naval ports abroad into which they might bring their prizes.

The Declaration of London was duly signed by the representatives of the various Powers, but it was never ratified by their Parliaments or Governments so as to enable the proposed International Prize Court to be set up. It had been the result of mutual concessions and compromises and it now stood in international law as a document representing the consent of the Powers as to what should be law, if a Court of competent authority existed to apply, and, in a sense, enforce its rules. Law in the strict juristic sense of the word must depend ultimately on the presence of a power that is capable of enforcing it. Outside of that it is mainly of the nature of moral law and dependent on the amount of moral constraint to which the nation or individual is willing to submit himself. When two powerful belligerents go to war with each other, that fact soon makes itself felt. The present war commenced with great bitterness, the Germans at the very outset showing an entire disregard of international obligations by the invasion of two neutral and inoffensive states, Belgium and Luxemburg, and by an exceptionally ruthless treatment of the Belgian and French populations in the districts they occupied. In naval warfare they also at once began laying floating mines or anchored mines of a forbidden type around the English coasts. This was a ruthless form of warfare and also illegal so far as it endangered peaceful shipping and terrorized, as no doubt it was meant to do, neutral commerce to Britain.* Britain countered this warfare by some stricter measures against commerce with Germany which were a departure from the Declaration of London, though they did not go beyond the practice

*The Hague Conventions attempted to place several restrictions on mine-laying, but Germany's opposition as a rule brought them all to nought, except the rule enjoining provision for the safety of peaceful shipping. (See the summary of discussions in F. E. Smith's *International Law*, Fourth Edition).

of nations in previous maritime warfare. On August 20th she extended the doctrine of the continuous voyage to conditional contraband; on Sept. 21 she removed copper, metallic ores, rubber and other things from the "free list" and made them conditional contraband; on Oct. 29 she made them absolute contraband along with nickel, aluminium, wire, sulphuric acid, etc. On the latter date also a Proclamation was issued laying down some stringent rules for the treatment of conditional contraband, but these were shortly afterwards relaxed in the case of ships whose papers and manifests were full and regular. These alterations of the Declaration, which were substantially followed by France, had all been proclaimed merely as alterations in certain articles of the Declaration of London, to which Great Britain declared she would adhere in other respects. These alterations were a formal departure from the Declaration of London, but they were not entirely against its spirit, for the Declaration (which itself had included in the list of absolute contraband some things not exclusively used for war) had allowed belligerents to add specific munitions of war to the list by proclamation, and copper, wire, sulphuric acid, nickel, iron ores, etc., had become of immense importance, very staples of war, in the new warfare of explosives which Germany had developed. Still less were the additions contrary to the practice of nations in recent wars. Even the extension of the doctrine of the continuous voyage might be reasonably considered, as Sir Edward Grey had pointed out, as in accordance with the broad principles which an American Secretary of State and American judges had laid down regarding the seizure of contraband destined for the enemy.

Late in September Germany, having cautiously waited to judge the prospects for her naval warfare, issued a proclamation of adherence to the Declaration of London. On land her complete military organization and superior preparedness made itself felt in many ways, but Britain's superior naval power, in combination with that of France, began to tell on her supplies. On January 26, therefore, Germany judged it expedient to issue an order putting all foodstuffs under Government control. This by the rules of the Declaration made all foodstuffs on their way to Germany liable to the stricter laws of capture. The order was afterwards modified as re-

gards imports of a certain kind, but the general situation remained the same, as it was well known that the German Government had taken control of supplies. Then Germany took a step which introduced wholly new conditions into naval warfare and maritime usage.

The Proclamation of a War Zone for Submarine Operations.

Germany had no naval power or position on the seas which could enable her to declare a blockade under recognized rules. Her cruisers could not keep the North Sea at all, away from the shelter of their naval base, and at most could venture only on hurried and intermittent raids at great risk to themselves. Nevertheless she proclaimed what was practically a blockade of the whole of Great Britain and Ireland as well as a part of the French coast by the establishment of what she called a war zone, within which she was to operate with submarines not only against war-vessels as hitherto but against merchant ships and neutrals presumed to be carrying contraband. Indeed, neutrals of all kinds, irrespective of cargo or destination, were warned that they approached the British coasts within this zone at their peril. Under proper regulations I suppose even the prowling submarine will come to be recognized as a legitimate weapon of warfare, but at least it was an illegal and unheard of form of attack on peaceful shipping and commerce, for the German submarines made no proper visit and search in the case of neutrals and often even did not allow any decent provision to be made for the safety of the persons on board the vessels they sunk whether enemy merchantmen or neutrals. That was not only a violation of the Declaration of London but a cynical disregard of all civilized usage in warfare. Nor could a few submarines hiding in a corner of the Irish channel legitimately claim the right of blockaders to stop all traffic. They had no control of the seas and could establish no effective or actual blockade of the coast. They could touch no traffic the British Government chose to protect by destroyers, and nine-tenths of the ordinary traffic passed them undisturbed. These essential requisites of the blockade were entirely wanting. They could only destroy and flee as a lurking assassin destroys and flees. The operations of the German submarines against commerce could be considered legal therefore neither under the laws of blockade nor those of

contraband, nor of both combined. They were a new step in the direction of mere terrorism, of that policy of Schrecklichkeit or frightfulness which is an avowed part of the German theory and practice in warfare; and the scenes that took place when they sank liners crowded with helpless women and children were, like the slaughterings at Aerschot, Andenne, Dinant, Louvain and many other places on land, simply an outrage on humanity. Indeed the submarine, used as the German has taught the world to use it, as a sort of prowling assassin sent abroad to destroy, must be considered, like the use of poisonous gases, one of those base forms of warfare which Germany has forced on our age, as if she, or at least her leaders, were seeking deliberately the moral ruin of our civilization.

The Commercial Blockade of Germany.

It was on February 18th that Germany had officially proclaimed her intention to operate a war zone blockade by means of submarines. At the first reports of sunk merchantmen the German papers jubilated and bragged in their usual manner as if British naval power were at an end. Later on German children got a holiday over the Lusitania's destruction and German poets celebrated it in song, revealing to the whole world, which as yet had only half understood, the terrible possibilities in the German character. On March 1st Britain and France had replied to the submarine menace to the commerce on their coasts by a stringent measure against Germany's oversea trade so far as it was still carried on by means of neutral ships and countries. All goods of German destination, origin or ownership were to be treated as contraband and neutral vessels suspected of carrying such goods were liable to be detained and taken into port for examination when on their way to the ports of countries adjacent to Germany. It was technically a measure of reprisals for the illegitimate and novel form of warfare which Germany was conducting against the commerce of the Allies.

Retaliation in war is at best a very doubtful measure, and used as the Germans used it against Russians (three villages to be burned for one), and against the population of Belgium, it leads straight to barbarism. But it is obviously more capable of being justified in commercial and economic operations, where under the title of protective or prohibitive legislation it

has often entered very largely into the policy and practice of nations. The new measure was a wide departure from the maritime laws regarding contraband and blockade in the Declaration of London, though it was not the outrage upon both law and humanity which the submarine operations of Germany involved. It proceeded as the Proclamation itself pointed out, by "regulated capture" and discriminating investigation and not by "indiscriminate destruction." The object of the measure was to stop German commerce just as Germany had tried to stop Britain's commerce, but the island Power could retaliate effectively here only by exercising a certain surveillance over the trade to neutral ports adjacent to Germany. The mere right of surveillance and search in such a case was not new. It was recognized in the practice of nations and had in fact been strengthened and fortified in the Declaration of London; nor was the seizure of conditional contraband in such a case, or anything special that the belligerent chose to proclaim contraband, new in the practice of previous wars, though this had been disallowed by the Declaration. Nor was there any real difference of principle between seizing sea-borne goods carried to the enemy through a neutral port, when they were to be sent to him afterwards by rail and seizing them when they were to be sent by sea. All those practices, although the unratified Declaration of London had sought to cut them down, had been asserted and more or less recognized in naval warfare. But the blockade which should cover the entire stoppage of German commerce by its principle was only imperfectly carried out; it did not cover the Baltic Sea and its principle did not legitimately extend to the barring of access to neutral ports. The measure adopted by the Allies was virtually a combination of the essential principles of the blockade and the doctrine of the continuous voyage. It has a rather broken-backed basis, therefore, in international law and must be regarded mainly as an exceptional measure of reprisals justifiable by Germany's disregard of international law which has left the Allies without any protection from that source against her outrages.

The stoppage of all enemy commerce is of course within the right of a belligerent, the stoppage of it through the various neutral channels by which it may be clandestinely carried has always been a delicate and difficult question, over which

nations and jurists have wrangled and in which the usage has been varying. With the tendency which modern warfare is steadily showing to become an economic contest of resources, it is evident that the real difficulty will be in future, as it is to-day, to find a just principle of distinguishing between the genuine normal commerce of a neutral and that by which he is furnishing supplies to the enemy and thus sustaining the enemy's resources. It is probable that in every case the situation will have to be judged on its merits and that attempts to regulate it with precision beforehand will fail in view of the constant development of material and economic conditions. There is nothing illegal or against international law in a private neutral attempting to furnish supplies to an enemy. He does not according to international law compromise his country or his flag in doing so. But of course a belligerent has a right to prevent him, if he can. But how to distinguish between the ultimate and the official destination of goods bound to Rotterdam or Copenhagen with the many facilities which modern methods of business and large modern ships afford for concealment and evasion! To do that effectively would require an extensive system of surveillance at ports of export and import as well as examination of suspected vessels. Of course there is a rough but not altogether unjust criterion of this extra trade to neutral countries to be found in the amount of the normal trade which they did before the war, and on this basis partly the Allies have been able to make agreements with the neutral countries adjacent to Germany, or with representative mercantile bodies in them, for the free passage of goods guaranteed not to be forwarded to Germany. So far the matter rests on pacific agreements, and it is obvious that a powerful combination like the Allies, that can legitimately offer or withhold many commercial privileges (supplies of bunker coal, for example), has plenty of means at its disposal for enforcing the blockade in a pacific manner.

But it must remain doubtful to what extent the prohibition of sea-borne imports into Germany will be effective. For the Allies naturally desire to use the greatest possible leniency in carrying out this exceptional measure. As the blockade is technically imperfect in its character, the usual penalties of confiscation are not exacted unless the cargoes are expressly subject to condemnation under the ordinary rules of contra-

band. Detention is the only inconvenience a neutral ship suffers, and where her innocence is shown compensation is awarded by the Prize Courts; when goods of doubtful destination are retained they are paid for. Ports of call have also been established where a neutral may get a speedy clearance for her cargo.

It is a different and somewhat easier matter to carry out the blockade in the case of Germany's exports oversea. A British Parliamentary report which was published the other day gives some statistics on the subject and makes the general statement that "German exports to oversea countries have been almost entirely stopped." Measures have even been taken to stop exports on a small scale by means of the parcel post.

Of course this form of blockade like every other involves grave inconveniences to neutrals, but on the whole as far as I can see the Allies have had no reason hitherto to feel that the exceptional situation created by this war has not been fairly appreciated by the neutral peoples mainly affected. The official protests have been no more than might be expected in the circumstances, especially in the case of a great Power like the United States; it might almost seem as if they had all silently recognized the fateful significance of the war as a gigantic struggle between the ideal of a free democratic civilization and the stern and oppressive system on which a military domination must always rest. And perhaps that is not too much to expect of them at such a crisis. They are aware that they could do nothing to restrain the German in his first cold-blooded violation of international law and of those precepts of humanity which are a still clearer and stronger form of international obligation; and they are aware they can do little or nothing still. It is only the blood and sacrifices of the Allies that have been able to set any limit to that, so far as they have been able to set a limit to it. It is not too much to ask them therefore, as Mr. Balfour did in his defence of the exceptional commercial measures taken by the British Government, that "since they cannot enforce the law on those who violate both its spirit and its letter let them not make haste to criticize belligerents who may thereby be compelled in self-defence to violate its letter, while carefully regarding its spirit. For otherwise the injury to the future development of international law may be serious indeed."

And it is not as if the general trade and prosperity of the neutrals were suffering by this great conflict. On the contrary, they are thriving on it, whatever limitations particular forms of trade may be subject to. The merchants of Copenhagen and the farmers of Jutland must be making fortunes and the profitable business of supplying the great industrial districts of Westphalia is now entirely in the hands of Dutch middlemen, and, I believe, (in spite of all prohibitory measures) of the port of Rotterdam. As regards the United States one has only to look at the quotations on the exchanges before the war and now; everything—mines, steels, railways, shipping—has greatly appreciated. Besides the large profits they are making in munitions, their exports to South America and in many things to Canada are twice what they were, as a direct consequence of the war. Indeed, to all appearance this war is going to make the United States for the first time the premier financial power of the world. That is some practical compensation for the detention of some hundred thousands of bales of cotton that otherwise would have gone to Germany. And it is to be kept in mind that cotton is a material much used in explosives and that if Great Britain had chosen to proclaim it absolute contraband, as the United States did in the Civil War, or as France proclaimed rice and Russia coal in previous wars, and Germany, in the present war, wood, she could under the rules of the Declaration of London seize and absolutely confiscate every bale on its way to Copenhagen or Rotterdam, if it was shown to be destined for Germany. And that, as we have seen, is American doctrine in a quite special sense from the days of Secretary Seward to our own time. But Britain wisely, I think, preferred the milder way and the more lenient treatment.

JAMES CAPPON.



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GERMAN PHILOSOPHY AND THE WAR.

I FEAR it will be very hard for me in a short paper to give more than a general idea of the relations of German philosophy and the dreadful war into which her rulers, either purposely or by their wretched diplomacy, have plunged Europe and the overseas dominions of Great Britain. Philosophy, just because of its comprehensive character, and because by its nature it eschews prophecy when it is true to itself, never acts immediately and directly upon life; but while this is true, it would be a great mistake to imagine that it has no influence whatever. The forces that in the long run are most powerful are those which work quietly and unostentatiously; and of these not the least important are those speculative ideas that, since the time of Plato, philosophers have believed to exercise a profound influence on human character and human action. If this seems a hard saying, it will perhaps appear more intelligible if we remember that in our complex modern civilization such ideas are not confined to those whose special function it is to build up or to defend philosophical systems, but include all who reflect in a large and comprehensive way upon the world in which we live, the foundations of human conduct, and the principles that lie at the basis of the universe. It is, I am convinced, only apparently paradoxical to say, that the fierce conflict which even now convulses the world is at bottom the clash of opposing ideals of life rather than the shock of armed hosts. Ideas, as Luther said, are living things with hands and feet. It is therefore no mere curious enquiry, but one that deserves and demands the most careful investigation, what is the responsibility for the present war of the speculative minds of Germany, whether their special walk in life has led them to devote attention mainly to politics, history, or philosophy proper.

When in the year 1790 word was brought to Königsberg that the French people had set up a Republic, Kant (born 1724: died 1804) turned to his friends, and with tears in his eyes exclaimed: "Now I can say with Simeon, 'Lord let Thy servant depart in peace, for mine eyes have seen Thy salvation.'" The venerable philosopher fondly believed that his dream of a perpetual peace on the basis of a republican constitution of humanity had begun to be realized in European countries as well as on the continent of the New World; and the fact seemed to him to be a good omen for its final realization in every state in the whole world. Whether, like Wordsworth, he might not later have been disallusioned, when he learned of the excesses and the intolerance of the French Republicans, one can only conjecture; but his enthusiasm of humanity in the presence of the declaration of freedom by the French is unmistakable, and indeed was shared in by his immediate followers, Schelling and Hegel, who in their undergraduate days, as we are told, went out one day with a number of their fellow-students and planted a Tree of Liberty in the market-place of Tübingen. It is true that Hegel in his later days constructed a political philosophy which his opponents claimed to have been modelled after the Prussian constitution; into that controversy I cannot at present enter, but it is at least certain that he not only did not endorse, but expressly attacked, the doctrine that the State rests upon force: "its binding cord", as he expressly says, being "not force but the deep-seated feeling of order which is possessed by us all." And in criticizing Haller, the von Treitschke of his day, he says: "It is not the power of the right that Haller means, but the power of the vulture which tears in pieces the innocent lamb" (*Philosophy of Right*, p. 245 n.). When we further remember that Fichte, in his noble and impassioned *Addresses to the German People*, was seeking to lift his countrymen above their narrow and selfish point of view, and to unite them in the faith of a common patriotism, it will be evident that these philosophers of Germany's heroic age, so far from being distinguished by the arrogance and boastfulness of some of their present successors, were rather in the position of men who were trying to persuade their countrymen that only by banding together and sacrificing their selfish and personal

interests was it possible to have a country at all. But, when we pass from these philosophers of the early nineteenth century to our own day, we find an entire change in temper, and spirit and outlook. Here is the venerable Herr Doctor Adolf Lasson, one of the editors of Hegel's works, and indeed a successor to his chair in Berlin, giving utterance to a boastful self-satisfaction that one could hardly excuse in a youth of eighteen. In Russia, he tells us, "everything is dishonourable and depraved." It is painful to a cultured German to think that the German army, "with qualities such as no other nation can produce," should be faced by "raw barbarian hordes on the East, and in the West by the military bagmen who drag their bones to market at a salary and commission in the service of a nation of shopkeepers." (Alas, poor England!) The French, he proceeds, unlike the Russians and the English, are an intelligent people, but they "live on crazes and illusions and allow their imaginations to run away with them." "With such a rabble must our splendid men and dear lads draw swords." "In truth," he complacently adds, "we Germans are the foremost people of the new age. The whole of European culture, which is in effect universal human culture, is focussed as by a lens on this German soil and in the heart of the German people. . . . We Germans represent the latest and highest product of European culture in general, and European culture is universal culture." (Q.E.D.)

Obviously something remarkable must have happened between the first decade of the nineteenth century and the first decade of the twentieth, to account for the conversion of a simple and, on the whole, a modest people into this portentous exhibition of national arrogance verging upon stupidity. What is that something?

For one thing, as we all know, Prussia has got the upper hand, and Prussia, since the days of the great elector, has always been distinguished for its arrogance and its brutal disregard of the rights of other nationalities. There are differences in the temper and character and ability of the Great Elector, Frederick the Great, and William the Second; but in one thing they are agreed, namely, in their thorough conviction that the world has been made for the aggrandizement of the great German people. When armed with the highest

products of modern science a man so ill-balanced and erratic as William the Second is necessarily a menace to all other nations. Having absolutely no capacity for self-criticism, and being filled with a colossal and superstitious self-admiration, it is little wonder that, urged on by a military *entourage* even blinder than himself, he has been led to plunge the world into the horrors of the present war. The foolish old man, whose words I have already quoted, is unfortunately representative of much of the articulate voice of professorial Germany; and what one is interested to learn is whether there is anything in the history of Germany and German philosophy to account for the phenomena that we are now witnessing; and, if so, whether there is a reasonable hope that the German people, when they have recovered from their bad dream, may regain that large outlook on life and that sanity which are characteristic of an earlier period and of their great philosophers. To give some answer to these questions will be the main object of this paper.

"It is a melancholy thing," says Hegel, "when a people has no longer a political philosophy, and not less melancholy when it has lost its metaphysic and no longer seeks to comprehend its own inner nature." In view of the actual history of philosophy in Germany, these words sound like a solemn warning. That the countrymen of Hegel have put the world under obligation in many respects no unbiased person will deny, but in the construction of a philosophy, in the large sense of the word, the successors of Hegel, in spite of brilliant sallies by individual thinkers, have been singularly unsuccessful. Nor have they been any more successful in the construction of a Philosophy of Religion. True, they have taken up the task begun by Spinoza, and carried forward so far by the English Deists, the task of subjecting the Scriptures to the cold and severe test of historical criticism; but their labours have only resulted in supplying materials for a revision of traditional theology, and cannot for a moment be taken as a substitute for a philosophy of religion. Historical criticism, valuable as it is, is no more a philosophy of religion than researches in biology on the basis of the new ideas supplied by Charles Darwin and Alfred Russel Wallace are a metaphysic. A proof of the incapacity of the German philosopher to construct a philosophy

of religion may be found in the vogue of Schopenhauer and Nietzsche. A theology without a God is impossible, and there is no God in the system of these thinkers. The Absolute of Schopenhauer is an abstract Force, while the God of Nietzsche is his Superman. I do not deny the value of these thinkers as supplying incentives to others, but they have no philosophy of religion themselves. In making these charges against the philosophers of Germany, I am not unmindful of the fact that there are German thinkers who have not bowed the knee to Baal. Lotze, Fechner, Pfleiderer and Paulsen must always command our respect; but none of these thinkers has really appealed to the minds of their blinded countrymen. While Lotze has been neglected, except by a few cultured students, the young men, yes, and the young women, of Germany have been intoxicated and bewildered by the dangerous half-truths of Nietzsche. Fechner no doubt has appealed on the one hand to minds of a mystical type, and on the other hand by his scientific psychology to the prevalent type of German scholar: Pfleiderer has had more influence in England than in his own country; but neither of them has had any permanent effect on the main current of German thought. Treitschke, again, was pouring forth his impassioned glorification of Germany and perverting the minds of his youthful hearers by a false reading of political history, punctuated by unmeasured scorn of other nations, especially of England, while the moderate and reasonable Paulsen was listened to respectfully but without enthusiasm. These things require explanation; and the explanation lies to a large extent in the political and economic history of Germany.

The history of Germany during the last one hundred and twenty years may be divided into three great periods: from 1794 to 1870, from 1870 to 1888, and from 1888 to the present day; and it will be found that in a general way the movements in philosophy, in politics, and in political economy correspond. The political unity of Germany was secured comparatively late, partly because of the strong individuality, not to say the selfishness, of the two hundred states into which the Teutonic people were divided. At the beginning of our first period the economic condition of Germany was as poor as possible. Systems of common cultivation and of partial villeinage prevailed;

and industrial development could hardly be expected from a people split up into separate states, and almost hermetically sealed against one another, not only by tariff barriers, but by differences in measures and money, in customs and laws. From 1850 to 1860, however, the foundations of Germany as an industrial state were laid, although its rate of progress was retarded by the rivalry of other countries, especially in iron and steel and other mineral industries. A new order of things was initiated by the reforms of Stein and Hardenberg and several others, and it is significant that these reformers were none of them Prussians. Stein was aided in awakening Germany to self-consciousness by the addresses of Fichte already referred to; but the mass of the people were kept out of even moderate rights for many years by the pedantic Frederick William the Third and his pedantic statesmen; so that in Germany, almost alone of the great European powers, the democratic and national movements towards unity and liberty were stifled in their birth.

In the second period of her history Germany entered upon a new career under the guidance of Bismarck, the final result of which was the unification of Germany and the contemporary organization of the Prussian army by Roon, while the military strategy of Moltke resulted in the triumph of Prussia, first over Austria and later over France. The effect of the war on the German people was to stimulate their consciousness of unity, and, under Bismarck's guidance, to develop the rich mineral resources of the country, thus emancipating Germany from its dependence on foreign countries.

The third period of the political history of Germany begins with the accession of the present Emperor in 1888. There immediately followed a great increase in numbers of the regular army and the development of an ambitious naval policy. The country has been during his reign commercially prosperous in the highest degree, and so far as trade and industry are concerned there was no need to long for "a place in the sun," which Germany already possessed. But, contrary to the policy of Bismarck, the rulers of Germany have acted on the principle that an extension of territory is indispensable in a great power. As a matter of fact, Germany's best cus-

tomers, as one of themselves has pointed out,* have been found in foreign countries, their colonies having been so far only a source of expense. It is not necessary to discuss the question of where the responsibility of the present war should be placed. What is certain is that till the eleventh hour Sir Edward Grey worked with all his might to prevent the present disastrous conflagration, and was balked at every turn by the apparent determination of the German Government to provoke hostilities, for which Germany alone was adequately prepared. On that topic nothing more need be said, and I gladly turn to my main subject, the relation of German philosophy to the present war.

One cannot but be struck by the enormous influence on the whole development of German philosophy exercised by Immanuel Kant. Not only is it true that a vast amount of industry has been devoted by philosophical writers to the elucidation of the letter of Kant, but even writers who belong to an entirely different school of thought have been unable to escape from his all-pervasive influence. This fact is not at all difficult to explain, when we remember the genius of this 'epoch making philosopher,' as his countrymen call him, and reflect that the Critical Philosophy is itself the result of a sort of compromise between discrepant conceptions of life, and covers with its three Critiques the whole realm of philosophy: epistemological, ethical, aesthetic and religious. The philosophy of Kant sought to effect a synthesis of empiricism and rationalism; but the attempt, while in spirit it was on the whole successful, achieved its end by a method which in its literal acceptance was bound to lead to divergence and dissension. The "rift in the lute" indeed appeared during the lifetime of Kant himself. Nor had the immediate successors of Kant—Fichte, Schelling, and Hegel—all triumphant as they were in the first instance, everything their own way. Even in the lifetime of Hegel, Schopenhauer, with the peculiar arrogance that we have come to associate with the Prussian character, dissented violently from the teaching of Hegel, and, as a Privat-docent in Berlin University, openly displayed his hostility by fixing his lectures at the same hour. The result was

*The anonymous author of *J'Accuse*.

hardly what, in his self-confidence, he had anticipated; for Hegel's lecture-room continued to be crowded, while in Schopenhauer's there was no difficulty in getting an empty bench to oneself. Nevertheless, in a sense the immediate future was with Schopenhauer; for, although the large and comprehensive philosophy of Hegel, whatever may be said of its specific doctrines, has undoubtedly in it this fundamental truth, that the universe is a rational system and that in the great process of humanity goodness is bound in the long run to prevail; yet, in the first reaction against his triumphant idealism, the theoretical one-sidedness and the pessimism of Schopenhauer caught the public ear, and the history of the former *Maestro di color che sanno* was temporarily obscured. Only temporarily, for Hegel can no more be ignored than Plato or Aristotle. He belongs to the apostolic succession of the great heroes of philosophy; while Schopenhauer, with all his literary gifts and his immediate success, was the author of an untenable metaphysic and an impossible theory of ethics, which can only be compared to one of those discords in music that help to enrich the general harmony. Even Nietzsche once declared, in a flash of inspiration, that Schopenhauer, "by his unintelligent rage against Hegel, succeeded in severing a whole generation from its connection with German culture." (*Beyond Good and Evil*, sec. 204.)

The bone of dispute concerned the nature of the ultimate principle of the universe and the organ by which it may be reached. Kant's view was that the circle of knowledge does not extend, roughly speaking, beyond the realm of the natural sciences, and that the realities, which in his view undoubtedly exist, fall outside of this circle, and are a matter of rational faith, not of knowledge. The contention of his idealistic followers, brought to a point in Hegel, was, that the Absolute or God not only exists, but is the source of all knowledge, and indeed is in the strict sense the only object really knowable. To deny knowledge of this principle, or to ignore it, is to commit intellectual suicide. What these thinkers were contending for is expressed in more ordinary language in the words of Scripture, that God is "not far from any one of us, being in our mouths and in our hearts." Schopenhauer, on the other hand, maintained that the ultimate principle is not

Intelligence, but Will; and by Will, as we soon find, he meant something that only differs from Force by its indefiniteness and unknowability. This blind unconscious principle, lying beyond the sphere of the human intellect, is for Schopenhauer the true principle of the universe; the popular idea of a self-conscious deity being to his mind merely the survival of an obsolete superstition.

Here then we have the issue fairly stated. Shall we accept the idealistic doctrine of a self-conscious Principle as the true source and explanation of reality, or must we fall back upon some unknowable Power, figured to ourselves after the analogy of the forces of nature? The tragedy of German philosophy seems to me to be this: that, for reasons hard to disentangle and impossible to set forth at present in detail, the idealists have lost ground, while the positivists have captured the popular ear. No doubt Nietzsche, the one man of genius whom Germany has produced in the lifetime of men now living, had a horror of the direction in which his countrymen were blindly drifting; but the romantic and immaterial principle for which he was contending was later materialized, and employed in support of a bureaucratic system that was the special object of his detestation.

Leaving aside the names of Nietzsche, Lotze, von Hartmann, Sigwart, Wundt, Paulsen and Windelband—all of whom belong more or less to the idealistic tradition—let us turn our attention to the undercurrent of German philosophy in its second period, beginning with the publication of Liebmann's *Kant und die Epigonen* in 1865. Liebmann indeed was not by any means the first to reject the larger idealistic view of the world; for, as we have seen, Schopenhauer had already done so, proclaiming himself to be the true follower of Kant. The strong meat of Schopenhauer, however, was too rich for the digestion of the ordinary German professor of philosophy; and the cry of Liebmann, "Back to Kant" (which really meant, "Back to the Letter of Kant"), comforted their Philistine souls. The charge brought by Liebmann against the idealists was that they had forsaken the realm of verifiable experience and presumptuously attempted to define and comprehend the ultimate nature of reality. It does not seem to have occurred to him that the limitation of knowledge to that

which presents itself within human consciousness is the *fons et origo* of that very "thing-in-itself" which he assails with his spluttering and noisy battery. The illusion which besets those who claim that while we are able to determine the character of the objects that fall within our experience, we can never emerge from this kingdom of shadows, exercises upon Liebmann its usual fascination, and he never seems to be aware that a theory of the insuperable limitations of our knowledge assumes that very "thing-in-itself" which he falsely attributes to the genuine idealist. If true reality is behind and beyond knowledge, it must be unknown and even unknowable. It matters not that ostensibly Liebmann confines himself within the narrow bounds of human experience; for back of all this experience lies the empty Absolute, which nothing but a fiction of abstraction prevents from vanishing into nothingness. Thus the real dualist is not the idealist who claims that we live in a rational and intelligible universe, but the realistic epistemologist with his express or tacit opposition of the knowable and the real.

Besides the general denial of any knowledge beyond that of the ordinary world of our experience, German philosophy in this second period of its history upheld an ethical doctrine, wrongly attributed to Kant, which maintained that the function of knowledge is practical rather than theoretical, being simply the method by which, living within the world, the inner nature of which is to us unintelligible, we set up practical rules that enable us to make progress in morality without ever coming in contact with the universe in its ultimate nature. Vaihinger, the expositor of Kant, departs so far from the ordered world of experience maintained by Kant as to deny that the conceptions by which we organize our world have any other value than as convenient fictions enabling us to find our way in a world too vast and too mysterious to be understood. It will hardly be denied that doctrines like these afford only too good an excuse for those whose interest it is to maintain that "Might is Right." If we cannot know the inner nature of things, what can our morality be but the prudential rules of finite beings who have to live somehow with one another, and who in the absence of fixed principles are engaged in the process of each trying to raise his head above the others? For

the same reason, religion can have no absolute value, and what is put in its place must be some overmastering impulse, in itself ultimately indefensible. Accepting these premises we can partly understand how the German people have gradually been converted to the belief that the old sophistical doctrine, 'Might is Right' and 'Justice the interest of the stronger,' is the true principle of philosophy. In this way one can also understand how Nietzsche's gospel of the Superman should be transformed into Treitschke's confident belief in the omnipotence of the Prussian state, or rather the Prussian Government; and we can even discern how a still lower deep than the lowest deep to which Treitschke had sunk should be reached by General von Bernhardi, with his crude soldier's theory that the world was made for the glory of Kaiser Wilhelm der Zweite and the great Hohenzollern family. The pity of it all is that German philosophy in its popular form has lost all rational belief in Love and Righteousness, and has enthroned in its stead the fetish of Force and Fraud and Frightfulness. Are there any symptoms that this debasing creed will be outgrown? Are there no philosophers of recent times who have got at least a glimpse of a truer way? I think there are, as a consideration of the third phase of German philosophy seems to indicate, a phase which extends from the year 1888 down to the present day.

The philosophers of the Second Period, as we have seen, are all convinced epistemologists, that is, they are agreed in denying that we can ever comprehend the inner nature of the universe, and must therefore content ourselves with a working theory of life, leaving the attempted solution of ultimate problems to the weak and muddled heads who waste their energies on unpractical and idle problems. We of the English tradition find nothing especially new in this attitude. Some fifty years ago, George Henry Lewes wrote a *History of Philosophy*, to prove that it presented the melancholy spectacle of the best minds engaged for centuries on a task similar to that of squaring the circle; and the burden of the philosophy of Herbert Spencer is that the Absolute is by its very nature unknowable. Like much of the supposed advances of the last fifty years of the nineteenth century, the successes claimed by their countrymen for the German epistemologists are largely

due to thinkers of the despised "nation of shop-keepers" whom cultivated Englishmen believe themselves to have outgrown. Be that as it may, it is certain that with the third period, beginning with the publication of Avenarius' *Critique of Pure Experience*, we seem to see the dawn of a better day for German philosophy. For, though this careful writer cannot be placed alongside of men like Lotze or Fechner or Nietzsche, he is a sober and careful thinker not devoid of a certain degree of metaphysical insight. Our ideas, he says, are no doubt determined by our experience or environment; and yet he will venture to affirm that knowledge is something more than an instrument of action, being by its very nature an orderly system, existing no doubt only for us as conscious and intelligent beings, but in no sense arbitrarily made by us. This idea, true as it is, is expressed by Avenarius in a somewhat halting and ambiguous way, when he tells us that we must abolish the opposition of physical and psychical, since mind differs from matter, not in fundamental nature, but only as containing more in it. Still more decisively Cassirer, who belongs to the Marburg school of philosophy, approximates to the main doctrine of the early idealists, in so far as he holds that we are capable of rising above a purely individual point of view and discovering the actual connections of things. No doubt it is in the conceptions of mathematics that he finds the categories by which this truer view of the world may be obtained; but, though the idealists would regard this limitation to mathematical conceptions as itself a limitation, they would entirely agree with Cassirer and the Marburg school generally in their view that really fruitful conceptions are never the product of an arbitrary process of classification by abstraction or elimination. To the same effect it is argued by Husserl, that in our experience there are necessary distinctions and relations, by the proper comprehension of which we are not only enabled to see the relative truth of our ordinary view of the world, but to see beyond it. Thus Husserl seems to intimate, "as by a side-gesture", that we are not entirely deprived of a true grasp of the world. It may be admitted that the empirical tradition is still too strong for these thinkers to seek for a reconstruction of philosophy on a rational or idealistic basis; but I think it can hardly be denied that, after wander-

ing for many years in the wilderness, with eyes obstinately fixed on the earth, the better class of German minds have begun, almost shamefacedly, to glance upwards to the heavens; and one is disposed to believe that the very thoroughness of the German intellect may, in its slow and laboured way, yet come to work out in a reasoned system that which thinkers of other nations obtain in a flash of inspiration. Nor must we forget that in the more positive departments of philosophy we owe the plodding German a debt of gratitude. Fechner and Wundt, assisted by a host of philosophical hod-carriers, have done much to advance the cause of a precise and accurate psychology; and the contributions of these and other thinkers to the theory of art and the history of religion and of political institutions cannot be overlooked. Nor have all professors of philosophy, or even all Berlin professors, subscribed to the crude theory of the state expressed by Treitschke. Here, for example, are a few sentences from Paulsen, which show that he saw the danger of an autocratic government, especially when its policy is dictated by a military oligarchy. In a lecture on *Party Politics and Morals*, delivered in Dresden in 1900, he says:—

“The most perfect type of organization from above is the army, in which combination and division of labour are carried to the minutest point, to the entire exclusion of all combination from below. Of the same type is an absolute monarchy. . . . Strict unity of will gives to this form of government great weight in attack. But a danger confronts the advantage—the danger that it may concentrate intellect and will on a single point, and cause a general decay in the peripheral members, because of the absence in them of independent activity. Losing all initiation and spontaneity, they come to present the phenomena of a palsied intelligence, will and conscience: the body as a whole loses its sensibility; internal disease may develop without being felt, and may have far advanced before there is in the members any consciousness of a failure of sensibility and responsibility. The rule of the Bourbons and that of Frederick the Great are historical examples of the fact that in an autocracy the citizens submit to the Government with an indifference verging on stupidity.”

To this indictment of a despotic form of government may be added Paulsen's warning against the claim of Germany to rule the world.

"Since the sixties," he says, "a new faith has sprung up, at first timidly and shamefacedly—belief in power and the will to power. This gave to the close of the nineteenth century its special significance. . . . 'Political questions are questions of power!' So said Bismarck with incisive and offensive bluntness, and because history is on his side the German people now think what he has taught them to think, and often in a much more one-sided way. The doctrine is held to apply not only to questions of foreign policy, but to domestic politics as well. He who has the strongest will and power to enforce it, is claimed to have right on his side. Compared with this, what is the value, it is asked, of the old parchments? 'Sic volo sic jubeo, sit pro ratione voluntas,'* has no doubt always been the point of view of men in authority, but only in our day has it been openly expressed as a maxim of policy."

Let me cite one more voice of warning. Speaking of the achievements of the German State, Windelband only five years ago gave utterance to his uneasiness in these words:

"Nowadays," he says, "we find ourselves irresistibly drawn into a whirl of practical work, which claims and absorbs every power, every interest and every activity in the highest degree. . . . There is scant time for inward meditation, for theoretical reflection: the national energy is so dispersed outwardly that it is unable to gather itself together within. . . . The zenith of our political life has produced no great poem, and no adequate philosophy, to express in terms of reflection the mind and life of the nation."

These words may well suggest the pertinent comment of Professor A. S. Ferguson*: "Perhaps the din about German culture which troubles one's ears to-day owes some of its loudness to faint stirrings of uneasiness." Many more sayings similar to those of Paulsen and Windelband might be quoted, but I must hurry to a close. One may at least derive from them the hope that, in spite of the appalling ferocity and bar-

* 'My will is my only reason.'

*University Magazine, April 1915, p. 224.

barity with which the present war has been conducted by Germany; notwithstanding the wild and whirling words of an Emperor devoid of self-knowledge; beneath the vapourings of a press which reflects the inflated notions of a people giddy with unforeseen success; one may hope that in the breasts of many sensible Germans, at present forced to be silent, there beats a more equable pulse; and that, at the close of the war there will emerge a chastened and subdued Germany, which has learned the "open secret," that no nation can respect itself that does not respect others. It cannot be necessary to point out the distinction between brute force and the just power of a State which can appeal to reason in defence of its acts. It is lamentable that a nation of thinkers should be misled by the sophistry which opines that, because each State has power to enforce its decrees on its own citizens, therefore one State may coerce all other nations in its own interest. No State may enforce a single law, even on its own citizens, much less make or break a single treaty, in defiance of universal principles of reason. The true foundation of the State is not force and fraud, but humanity and sympathy. We who are subjects of the British Empire do not claim that England has in all cases been free from blame; but we may fairly say that, with all her stumblings and mistakes, she has on the whole acted honourably and justly. Three hundred years ago England learned in her Civil War this great truth, that the real strength of a nation lies in the free and self-conscious development of the whole people—the aim of Government being to educate every citizen to an appreciation of the grounds on which it acts, and to condemn all unjust legislation and partisan administration. Nothing less can sanctify the employment of force; which, divorced from reason, becomes unjust and pernicious. Of stark Power we may surely say what Tennyson says of knowledge:—

"What is she, cut from love and faith,
But some wild Pallas from the brain
Of Demons? fiery hot to burst
All barriers in her onward race
For Power. Let her know her place:
She is the Second—not the First."

JOHN WATSON.

EMILE VERHAEREN—A BELGIAN POET.*

IT is a piece of daring, I feel, to introduce a modern poet like Emile Verhaeren into your company. In the past, I know, you have from time to time laid down the tools with which you carry on your fascinating work, to amuse yourselves an hour with a Wordsworth or a Browning or some other poet you have marked as your own. But I never heard of a quite modern poet straying into your workshop. Watch, therefore, I pray you, lest one of your great mysterious machines seize him in its jaws and dissect him away. He can tell much if not at once put too severely to the test. He knows the soul of the ancient beacon-towers of Nieuport and of the sunny almshouses of Dixmude and of the war-swept Dunes from Zeebrugge to Ostend. He was born at a village on the Scheldt past which the ships go up to grey Antwerp. His university was Louvain, his city Brussels. To the world at large he has been the voice of Flanders for the last twenty years. Now he is an exile. He has other passports to your favour, however, than his connection with Belgium, though none so excellent. He is not only the most prominent national poet of the Belgians, but the only living poet who has written of ocean-liners and locomotives, factories and steel-mills, opera-houses and music-halls, in an adequate way—not as they appear to the eyes of young romance, abstracted into a fairy-land of strange lights and new colours, but as they really are, with their grime and soot and living accompaniment of misery. Then, too, in his middle and later works he has set forth what he considers to be the principles underlying human history and human effort, which, though they are not presented in a formal way but as oracular sayings, may be said to make a philosophy.

Emile Verhaeren was born at a village on the Scheldt just below Antwerp in 1855. He is of the Flemish race. False ideas of that people have captured our imagination. They are hard, avaricious, stupid, we think. They show such indifference to toil as we associate with beasts of burden, and take

*A paper read to the Philosophical Society, February 14th, 1916.

such a rude, barbarous delight in wantonness and drunken license as do slaves when released from their grinding yoke. We have misunderstood them. Their hardness is the determination which comes after centuries of wrestling with the bleak North Sea winds and with armies of invaders. Their avarice is their care lest the fruits of their holy soil—it is in reality such to the Fleming—be wasted. Excessive labour dulls the eye and stuns the mind, but it has not killed the Belgian soul. There is a picture in the Louvre of a desolate plain; the grass is brown as if it were winter, and the horizons are hid in a pallid mist; in the centre of it is a glory of light amid which three kings are bowing before a woman and an infant; crowding forms of richly laden camels and bejewelled servants loom on the verge of the light. That is a Flemish conception of the Nativity. On Christmas Eve, says Verhaeren, when the icicles hang from the gables like spots of fire, the old people hear a strange pattering of feet along the cobbled roads. It is the Prodigal Son going past with his herds and Charlemagne and the bearded warrior Frederic and Louis who built Versailles.

Alors, là-bas, sur terre, au bout des plaines,
Sous l'étoile, dont plus rien n'est bougeant,
Une étable s'éclaire—et les haleines
D'un bœuf et d'un âne fument dans l'air d'argent .

A la clarté qui sort
Mystique et douce de son corps,
Une Vierge répare et dispose des langes,
Et, près du seuil, où sommeille un agneau,
Un charpentier fait un berceau,
Avec des planches.*

Verhaeren springs from a people hardened to toil for generations, from a people, too, of such intense vitality that in spite of the yoke upon it, it breaks loose at times in barbaric orgies; but from a people also in whom mysticism is

Felt in the blood and felt along the heart.

*Then, yonder, on the ground at the edge of the plain, under a star which has ceased to move, a stable is lit up, and the breaths of an ox and an ass smoke in the silver air. By the soft sweet mystic radiance which comes from her body a Virgin prepares and lays out swaddling-clothes. Near the threshold where a lamb sleeps, a carpenter is making a cradle out of planks.

Verhaeren was educated in the Jesuit college of Sainte-Barbe in Ghent. Maurice Maeterlinck, Georges Rodenbach, and Camille Lemonnier were his fellow-students. Thence he proceeded to Louvain University where he distinguished himself by conducting a rowdy newspaper and issuing forth on certain occasions to support its manifestos with the collar of his coat buttoned up and a leaded stick in his hand. There was a Roman Catholic faction and a free-thinking faction in that university in the seventies—Verhaeren was a Catholic then—who hated each other as bitterly as did the Flemish and Walloon factions two years ago when the war silenced their quarrels. The gentle elderly man in a corduroy suit looking with much serenity over his garden whom you see on the frontispiece of Stefan Zweig's book,† once never slept soundly unless he had broken a head metaphorically or really. That is one manifestation of the Flemish soul in him. Another is his first book of poems, *Les Flamandes*.

It is a picture of Flemish life of the kind painted by Jordaens and Rubens. Here is a bourgeois interior. Some are laughing, gesticulating and drinking. One looks round proudly with a pot on his head; another has improvised cymbals from two pans. Servants rush from the kitchen with newly washed plates. Great vessels filled to the brim with steaming juices are eagerly passed from hand to hand. The light from the chimney-place in which three rows of chickens turn on a spit, sets on fire the long stems of the wine-glasses and makes the fat bulging sides of a spirit barrel glisten. Here is a peasants' kermesse.

Les plus fiers de leur force ont des gestes de roi
 A rafler d'un seul trait des pots de bière énormes,
 Et leurs masques, marbrés de feu, dardant l'effroi,
 Avec leurs yeux sanglants et leur bouche gluante,
 Allument des soleils dans le grouillement noir.
 L'orgie avance et flambe.
 Des souldards assommés tombent comme des bêtes;
 D'autres vaguent, serrant leurs pas, pour s'affermir;
 D'autres gueulent tout seuls quelques refrains de fêtes
 Coupés de hoquets gras.

†Verhaeren. Stefan Zweig. English translation.

Greuze, says Verhaeren, made a mock of peasants in the pastels he made of them for Louis Quinze boudoirs. 'Here I give you them as they are—earthy, gross, bestial.'

This book was vehemently attacked as a libel of Belgian life, when it first appeared. We must agree that the condemnation of it was just. It was written in the first flush of an ardent admiration of Zola. It is too much taken up with merely photographic description. Then while it describes Flemish life in the season of the Kermesses, the life you catch a glimpse of in Jordaens' *Le Roi Boit* and in Rubens' *La Danse des Paysans*, it never gives a subject for Memling or the Van Eycks. Whatever be its limitations and defects, however, it is a sign of the rude force and red-blooded vitality and brutal sincerity which were in Verhaeren's mind.

Shortly after writing *Les Flamandes* his whole being was shaken by one of those spiritual cataclysms by which, it appears, every poet of any dimension is tried. When he emerged from it he set himself at once to proclaim his philosophy. What caused this cataclysm? A realization of the misery and ugliness of much modern life. He saw the ancient peace of the villages banished by railways and steam tramways; huge ugly slag-heaps growing up beside the new-sunk mines; the brooks and streams becoming oily and their banks refuse-strewn; instead of the haystacks standing serene through the night, rows of gigantic furnaces belching out flame and smoke; little traders disappearing; the village carpenters and shoemakers and smiths trekking into the towns—sometimes to be shut up in bleak bare barracks within the walls of their prison-house, always to give up the healthy routine of the country for the sleepless labour of the city; the frank hearty drunkenness and coarse license of the kermesse making way for the poisonous debauchery of the music-hall and the street.—For what purpose, he demanded, is all this corruption of the old peaceful ways?

This demand has been made by many besides Verhaeren. The state of things which brought it to his lips is common to all European countries. But by a Belgian it can be made with peculiar bitterness. In no land has the giant, industrialism, set to work so whole-heartedly immediately on his waking. The centre of its interests has shifted completely within the

last thirty years. Remembering the fervency of Verhaeren's spirit, we cannot wonder that this state of things lay upon him like the nightmare of a brainsick man.

At this time too he became connected with the group of young poets who were known as symbolists, whose chief doctrine was that poetry should not deal with ancient civilizations or with men and women around whom falls the clear hard light of day, but with the hardly glimpsed imaginings, the scarcely conscious thoughts which visit the mind. 'A poem,' says Verhaeren, 'is like the luminous semi-transparent veil of some great Isis—its underlying thought.' It is a symbol of a truth or maybe of two or three truths which cannot be adumbrated in any other way.

This new poetic creed added to the force of the cataclysm. One set of images filled the galleries of his mind—harbours, workshops, factories, drunkards, murderers, courtezans. He was forever gazing at 'the cavities and protuberances of the satanic mask with which civilization covers the hoary face of mankind.' These peopled his feverish dreams, were made symbols of his brainsick thoughts, and added to their intensity. He writes a poem on London. It is made of iron and bronze, he says; its ships go out into the infinite without an Our Lady to guide them; in its greasy smoky stations the weeping jets of gas throw a gleam on the steel rails; above it bells toll monotonously in everlasting ennui; in its streets are drunken beshawled women. This is the real London as it appeared to him then, but it is also a symbol of the ghastly city of dreams which his soul had become.

O mon âme du soir, ce Londres noir qui traîne en toi.

With this line he ends the poem.

I need not discuss the doctrine of symbolism. Its banner was raised in opposition to that of the Parnassians who dealt with life objectively. As a doctrine it is now dead; but it quickened the poets in its day, turned them from the things of the eye to the things of the spirit. Many incomprehensible and many fantastic poems were written in its name: that however is true of all movements; poetry like vegetation is in its most thriving state when it throws off much waste product. But whatever be the value of symbolism as a force in modern

literature and of those poems of Verhaeren's written under its influence, it assuredly increased the turmoil and confusion of his spiritual cataclysm. He did not sit down to answer the problem of the modern civilization as if it were an arithmetic sum to be solved by hard work and a good head for figures. It was not a thing outside of him he could take up and lay down at will. The figures and letters of his problem were spectres in his own mind. Here is his solution of it.

Much misery accompanies the advance of civilization. The old days when the labourer like his brother of the parable, strode across the fields casting out the good grain with generous hands, seemed better. It is sad to watch the women leaving their cabins to the mould and the rats, and with their children clinging to their skirts, making their way across the endless rain-beaten plains into the towns. But all these dolorous changes are for the best. Civilization offers compensations for them. Superstition would have lived on forever in the plains and villages. Only in towns was there such a concentration of energy possible as permitted science to thrive. Regard what marvels it has accomplished. It has made the world one; it has penetrated to its last recesses; it has wrenched their secrets from the stars and the winds and the rivers and from the bowels of the earth. You say that science with the co-operation of the towns has given nothing to repay that labourer for the loss of his clear brow and his healthy sleep. You say that it has degraded or slaughtered millions of the human race in the course of its tasks. I admit it. Yet when the balance is made up civilization will be found the creditor. 'If equity is at times forgotten and tyrants massacre to impose their rule, at least they do not look with joy on their sorry red hands. They inaugurate a law less barbarous and out-of-date which with time will become mild and human and full of light. If they prosecute revenge here, they pacify elsewhere. Though difficult to hear and trembling the harmonies of a future time sing together in their minds.'

This is Verhaeren's answer to the problem of modern civilization. It sounds very mild. I have made him speak for himself but I have put his words into prose and paraphrased them liberally. To get some idea of the real Verhaeren's answer you must imagine one with the delirium of fever still

lingering in his veins, crying against the North Wind at the cross roads, in raucous syllables, in rough unhewn barbaric sentences. It was no mild matter with him. He had to drown by sheer force of crying his regrets for the ancient time.

This answer laid the foundation-stone of his philosophy. We are on the right road, he says, in building huge armies and navies and in stretching miles of gas-lamps into the country; therefore let us hurry along it as fast as we can. Let all the 'tumultuous forces' of modern life use their energies furiously. Wage war with hardness and violence. Let the mothers though weeping dedicate as many of their children as are necessary to the mitrailleuses. Let the tribunes of the people act with a like excess, raising their barricades, stirring their mobs to revolution, to the firing of palaces and the shattering of governments. They may act wrongly. They may commit errors. When they go out to sea on their raids they may find the lamps of the lighthouses along the dunes obscured by swarms of night insects. Let them set out nevertheless.

Mais les plus exaltés se dirent dans leur cœur,
'Partons quand même avec nôtre âme inassouvie,
Puisque la force et que la vie
Sont au delà des vérités et des erreurs.'

To Verhaeren the most righteous man is he who continually presses onward with enthusiasm regardless of the commands of the dead religions and the dead moralities. 'La vie est dans l'essor? To live well is to give and take with joy. 'Vivre, c'est prendre et donner avec liesse.' Strength and magnanimity are the two virtues best worth possessing.

I think that the great majority of people if they examined themselves and admitted the truth to themselves, would find in their hearts a lurking admiration for this philosophy. When one lands in a great unknown city at night and walks through the streets with no care but to observe and feel, the crowds on the boulevards, the brilliant cafés, the excited roll of vehicles, the coloured lights shooting up and down the sides of tall sombre buildings, produce a marvellous exultation. If you go into a moulding shop at casting time when grimy figures are rushing here and there with ladles of sparkling golden liquid and columns of acrid smoke rise from the black sand, you are dumb with admiration. Any tale of a tunnel pierced or of a

desert conquered or of a great battle in which thousands have been slain, excites us. We glory in big things. Great manifestations of power and violence hypnotize us. We are apt to waive all moral considerations in their presence. Verhaeren is not therefore to be over-rigorously blamed for his theories. They were latent in the spirit of the time. They were, indeed, infecting it with their slow poison. Now we have cast them out. The war—the greatest manifestation of the ‘tumultuous forces’ ever known—has made clear to all but the blind and the deaf that they were instruments of darkness. Verhaeren himself has taken the tables of this new religion and broken them into a thousand pieces. In accordance with them he should have praised the German soldiery for trampling on the Belgian soul. Instead he has written *La Belgique Sanglante*.

I have now set before you what I consider to be the central idea of Verhaeren’s books published between 1890 and the present. It is not however the only idea in them nor does it hold its central place unchallenged. He is not a philosopher concerned to present a uniform system, but a lyric poet who expresses the intuition of the moment and then passes on; therefore it troubles him not at all if side by side with his main idea there stand ideas which cannot be reconciled with it. If a century after this Verhaeren is still known, readers of him will prize most the poems which express these. They deal with the history of Belgium, the working-classes and the peasants and the mystical side of life.

1. Till August, 1914, the great mass of the British people regarded Belgium as the parvenu among nations. Charlotte Brontë had called it phlegmatic and stupid; Thackeray had branded it as cowardly; Smollet and Sterne had kicked and cuffed it. In the nineteenth century under its callous business king, Leopold II, it had become the most thickly populated country in Europe and outstripped Russia, Italy and Spain in commerce and industry. But that was simply an additional reason for our contempt. The explanation of our great mistake lies on the surface. Belgium became a nation with a king of its own only in 1830: before that, from the time when it was first settled, it had been tacked on to one or another of France, Austria, Spain and Holland. Not only so, but apart altogether from foreign interference we thought it incapable

of any kind of national unity. We saw the Walloon and Flemish, the Latin and the Teutonic elements in it, remaining hostile to each other for ten centuries, and those of the same race fighting among themselves even in the presence of great danger—the Flemish armies of Bruges against the Flemish armies of Ghent—the fullers of Bruges against the weavers of the same city. Torn everlastingly apart by civil strife it seemed to us to have no power of becoming a true nation. But we misread history, as the great historian of Belgium has pointed out. Despite her Courtrai victories and her Van Artevelde and her populous cities and her immense wealth, it was impossible, indeed, for the Belgian provinces to achieve any kind of political unity as long as all the great European powers used them in turn as a battlefield and a prize. But she did achieve social unity. Her marvellous artistic works are a proof of that—her civic architecture, her town-halls and cloth-halls, her markets and watch-towers—her painters, the Van Eycks, Memling, Jordaens, Rubens. During the latter part of the seventeenth century and in the eighteenth, her artistic soul lay as if dead, but within the last thirty years the ancient mother has come to life again, and has brought into the light as a sign of her new vitality, not only sculptors and builders and painters as in the old days, but a great race of poets—Coster, Lemonnier, Rodenbach, Maeterlinck, Verhaeren.

It has been urged that a too great dependence on the past shackles our present action. There is no danger of Verhaeren being so hampered and tied. His genius will suffer no leash; it bounds along with the front pack of modern endeavour. Nevertheless, he remembers his high lineage. You can see that in the following poem, a kind of Belgian 'Land of brown heath and shaggy wood.' It is called *Les Tours au Bord de la Mer* and it deals with certain many-century-old watch or lighting towers which stretch along the dunes by the North Sea from Nieuport to Furnes.

'Widowed, mourning, worn by the winds of many ancient winters and taciturn autumns, from Lisweghe to Furnes the towers stand along the sea.

Since what day, what age, what vanished generation have they ruled this country and its mist-swathed sands.

Of old time they lit a fire on their crests in the gathering night, and the sailor fixed his eye on the flame stretched forth in the darkness.

When war came down on the Escaut and the tumult of warriors, the flaming towers seemed to shoot their rage from earth to heaven.

When old and little pell-mell lay slaughtered in tavern and farm, they threw up their red sacrificial fires supplicating the infinite.

Now war with its sound of rolling thunder clenches its bloody fist under other skies; and other towers and other phares armed with strange crystals and great golden eyes, throw on other waters clearer lights.

But you yet stand along the sea in the darkness and in the winter, without crown, without jewel, no scattered fire along your heavy brows: you stand there alone in the night-wind, you, the giant towers of Nieuport, of Lisweghe, of Furnes.

Flanders tenacious of heart; Flanders with thy dead in thy bosom, the well-loved earth between their ardent teeth. Land of rude pride where biting rage assails who dares to cross thy path or touch thy fate. Land of green labour about white villages. Land of clenched fists and frowning brows. Land of patient deaf determination. Land of red fête and pale silence. Be you tranquil farm or field of violence, you make your belfries and your towers calls, as if of a giant, to the Unknown and his Day. Each brick, each pebble, each stone, shuts up a portion of thy ancient sorrow and of the joy of thy grand ages. Towers of long-dead griefs, belfries of splendour, you are witnesses from whom none may escape. Your shadow is over my thoughts and my books knitting my life with death. May my heart be always in accord with you. Let it draw from you pride and high constancy. And may all those who come from sunburned clear lands across the sea, know, even in passing your silent beaches, even in placing a foot on your cold soil, what a venerable scarred race you symbolize, ye towers of Nieuport, of Lisweghe, of Furnes.' *

*La Guirlande des Dunes. 1907.

In this poem Verhaeren knits his life to the past. It is determined by it, and inspired by it. You may think that that signifies little. Even Nietzsche did not deny the past; if there had been no past, he says, there could be no supermen in the future; for they spring from it as flower and fruit spring from the dungy earth. But if Nietzsche thinks the past necessary as a condition of the present, he casts it from him like a husk robbed of its kernel: Verhaeren treasures it as his 'eternal jewel.'

Here is one of those contradictions in Verhaeren's thought of which I spoke. How can you reconcile Verhaeren's reverence for the soul of his people with that doctrine which justifies all the horrors and crimes of modern civilization as well as its splendours and nobilities? They cannot be reconciled. If his faith in Belgium is to prevail, then his Nietzschean answer to the problem of modern civilization has to be modified.

2. There is another contradiction to Verhaeren's central idea in his attitude to working-men and peasants. From the Renaissance till the present in all European countries these two great classes have been neglected or scorned or mocked by the makers of literary art. Consider how they have been treated in our own country. Shakespeare's artisans are mean pretentious knaves, his peasants stupid bumpkins. To Milton they are

a herd confused,
A miscellaneous rabble who extol
Things vulgar.

They never came into the sunshine of Pope's orbit or Dryden's. Fielding and Smollet dealt them little praise. It was not till the beginning of the nineteenth century that the peasants were raised from their state of ignominy by these true friends of democracy, Scott and Wordsworth. Despite the labours of Dickens, George Eliot, Mark Rutherford, and Hardy in the generations succeeding theirs, the great mass of working-men still remain in middle-class literature a race of inferiors.

In Belgium, where as in all industrial countries a similar state of things exists, there have arisen two great democratic artists—the sculptor Constantin Meunier and the poet we are considering. They have taken knowledge that in the armies

of overwrought Belgian field-labourers and in the vast new hordes of factory workers, furnacemen and miners, there is a soul just as there was in the Homeric warriors and in Charlemagne's peers.

Meunier during the last fifteen years of his life (he died in 1905) made a great series of bronze groups representing various kinds of Belgian workmen—furnacemen, puddlers, miners, fishermen, ploughmen. That called *The Man of the People* is one of the most striking. It is the bust of a young man. The face is slightly turned to the right, and the head is inclined in the same direction and downwards, as if he were considering some matter deeply. The lips are parted; the lines about the mouth mobile showing a generous spirit; the eye-sockets deep and the cheeks lean, as if of one who had laboured too intensely. The neck is sinewy and the shoulders are large and powerful like those of a man; but the face has a youthful look.—It wears such a light mask of disappointment as continually thwarted endeavour gives. But there is no rancour in it; and if it has no assured confidence, in it is no recognition of defeat.

It has been said that this, as all the rest of Meunier's groups, is untrue to life. No one ever saw such fineness and sublimity mingle in the face of a working-man, as Meunier has put there. I challenge the assertion. I do not say that you will always see *The Man of the People* if you watch miners coming home from their work, clamping along with their hob-nailed boots after eight hours underground, the stump of a pipe between their crusted lips;—you may, however, not be disappointed even here; but you will always see them if you go down to the pit-face with the miners, or if you mount a scaffolding with the rivetters or if you throw your barrow of ore to the bell of a furnace with the furnacemen. The soul of a labouring man is, it seems to me, truthfully expressed in *The Man of the People*.

Verhaeren has to some extent done in words what Meunier did in bronze. He has always been in sympathetic relations with working-people; he is connected with the Belgian socialist party and a friend of its leader, Mr. Emile Vandervelde; and he lectured regularly before the war in the great socialist institution of Brussels, La Maison du Peuple.

His poems, *The Miller*, *The Carpenter*, *The Smith*, *The Tribune of the People*, *The Farm-Mistress*, are in the same spirit as Meunier's work. It may be objected that the subjects of these poems with one exception are taken from the industrial life of villages and that the exception *The Tribune of People* is a hymn to one of the 'tumultuous forces' which are shaping our civilization. This is a just objection. One must admit that, so far, in Verhaeren's poetry there is not that fine understanding of the men in the mines and factories which you get in Meunier's groups; he classes them too much with the machinery and smoking chimneys—with the 'tumultuous forces.' But there is a tendency in Meunier's direction. In his last published book before the war *Les Blés Mouvants* (1913, is a poem on a 'farm-mistress.'

Dans son enclos ceint de grands murs
Où pousse au long des prés l'armoise ou la jonquille
Elle accepte son sort parmi les hommes durs,
La fermière à l'âme tranquille.

Elle peine de l'aube au soir,
Distribuant à tous ses paroles égales,
Et l'humble ouvrier trouve une place où s'asseoir
Autour de sa table frugale.

Ses cheveux, aux bandeaux vermeils,
Dorent son cou puissant, au jour de la croisée,
L'ombre est vaste qui suit aux champs, dans le soleil,
Sa grande marche balancée.

Elle a le vieux respect du grain
Et le tasse en sa chambre et sur son dos le charge:
Avant que le couteau ne divise le pain,
Sa main y trace une croix large.

Ceux qui parlent des gens d'ici
Entre eux, le soir, fumant leur pipe à la chandelle,
Avec des yeux sournois et des mots sans merci,
Changent de ton en parlant d'elle.*

*In her close girdled with high walls, where the jonquil and the armoise spring along the meadows, she accepts her fate—a life amid hard men—with tranquil soul. She labours from dawn till sunset, giving to each words of equity. The humble workman has a place at her frugal table. Her hair in dark red bands makes golden in the light of the croisée her strong neck. In the sunlight a great shadow follows her

Let me give you also a picture similar to this made twenty years earlier for *Les Villages Illusoires* (1895). It is from the poem called *The Miller*.

Sur sa butte morne de soir,
 Le vieux meunier du moulin noir,
 Jadis, avait vécu d'accord
 Avec l'espace et l'étendue
 Et le vol fou des tempêtes pendues
 Aux crins battants des vents du Nord;
 Son cœur avait longuement écoutés
 Ce que les bouches d'ombre et d'or
 Des étoiles devoient
 Aux attentifs d'éternité;
 Le désert gris des bruyères austères
 L'avait cerné de ce mystère
 Où les choses pour les âmes s'éveillent
 Et leur parlant et les conseillent;

Les plus anciens ne savaient pas
 Depuis quels jours, loin du village,
 Il perdurait, là-bas,
 Guettant l'envol des voyages
 Et les signes des feux dans les nuages.†

These are two companion pictures to Meunier's *Fire-Damp* and his *Sower*. I feel that he has the heart to make a group like his *Walloon Miners* and his *Puddler* which present the new industrial worker.

grand balanced walk across the fields. She holds the grain in respect after the ancient fashion; she places it in her chamber and carries it on her back. Before her knife cuts the bread she makes a large cross above it. Those who, smoking their pipes by the light of the candle, gossip in the evening with mocking eyes and merciless words, change their tone in speaking of her.

†The old miller of the black mill had lived on his dark mound with the spaces and expanses, with the mad rush of the tempests which hang on the flying mane of the North Wind: his heart had long listened to the dim golden voices which speak from the stars to the listeners to eternity. The grey desert of barren heath had girt him about with that mystery in which inanimate things awake and speak and give counsel to the soul. . . . The eldest knew not how long, there far from the village, he had lived, watching the flight of the clouds in their voyages through the sky and the signs of lightning.

But even if he never does this, as I have shown you, in his attitude to working-people generally, there are tendencies antagonistic to his central doctrine.

3. Not only do Verhaeren's sympathy with working-men and peasants and his attachment to the ancient soul of his country contradict his theory of 'tumultuous forces', but also his poems the subjects of which are mystical. That there are many such you must have already inferred from some of the passages I have read to you. *The Miller*, the poem on the prodigal son and the three kings, and even *Les Tours au Bord de la Mer* have been passed through the limbeck of mysticism. I need therefore say little of this class of poems—for you will already have formed some opinion of them.

They have a vast range. Some deal with the humble superstitions of the peasantry—their belief that it is Satan who sows the grain from which grows a strawy crop, their trust in the efficacy of a crumb of their sacred soil between their teeth in the hour of death to ward off marauding spirits, their reverence for the shepherds who by long dwelling on the heath, have become experienced in the knowledge of the stars. Others are nature poems of a Wordsworthian kind. The Spring sea-winds blowing in over the orchards and clover-fields and stirring to song multitudinous larks, bathe the poet's body and soul in a serene mystic joy. It is his highest pleasure to set out across the familiar fields on an April morning when Brother Jacques has newly awakened from his winter sleep, and to walk across plains, woods, and ditches, among the new flowers and under the ancient oaks. A great tide of joy then mounts in his soul. As it moves about its priest-like tasks he becomes part of a larger consciousness than his own. Perhaps, he says, after the 'tumultuous forces' have completed their work, it is in such a state of soul, perpetually contemplating Nature, the windows of the mind open to all her influences, that the wise will live.

I have dealt in this paper with Verhaeren's ideas. Speaking to a philosophical society I felt bound to do that. But under any circumstances a critic of Verhaeren would require to speak of them first. It has been claimed that he is the greatest poet of the present generation. If this claim is to be justified, it must be based on his attempt to treat modern life

in all its aspects, on the new subjects he has given to poetry. Other poets who in recent years have travelled along the same path as he, have stopped far short of him; they have refused to face and penetrate realities as he has done. You may not agree with his answer to the problem of modern civilization; and the modifications of it I have tried to point out may not reconcile you to it. That disagreement, of course, ought not to close his books for you. In them is a new strong poetic impulse. Their author is an ardent living soul at grips with life in the modern world, no Utopian gilding all things with visionary eyes, no mere capering fantastic.

W. D. TAYLOR.

THE RENAISSANCE OF THE COMMUNAL CONSCIENCE.

"In vain we call old notions fudge,
And bend our conscience to our dealing."—*Howell*.

THE world, we are being variously told, is in the throes of a new birth; and the God of Righteousness alone knows whether there is going to be wisdom enough left among men to see to the proper bringing-up of the regenerate one. The momentous war that is now with us is pregnant with wars to come after, as some see it; while others discern in it the opening of a new era, wherein battlefield strife will be given a back seat in the settling of international disputes, possibly to the point of being entirely eliminated as a final recourse. And certainly if there be wisdom enough left in our ethics for the proper up-bringing of the world, after it has survived the pains incidental to its being born again, that wisdom cannot but be found somewhere between the vapourings of the political militant bushwhacker, and the pleadings of his bugbear the peace-at-any-price advocate.

Sir George E. Foster, member of the Canadian Cabinet, without either condemning war or upholding it as a necessary means to an end, has lately said that, so disastrous are the general consequences of the present world's war, it is a relief to be able to detect some good arising from the struggle—that good being seen in the uplifting of mankind out of its rut of self-seeking in the ordinary routines of life. Indeed, he is all but inclined to think that war is born of the economy of nature, sent as an appeal to men and women to live, as our higher ethics call upon them to live. On the other hand, Dr. Starr Jordan of California claims that war leads to the downfall of nations, and is anything but a means of progress or a blessing of any kind. These views hardly guide us in the locating of the wisdom requisite for the proper up-bringing of the world, as it emerges from the present war. That wisdom must have about it an efficacious essence of common-sense. At the present moment, what we call common-sense as a counter-active to folly is virtually smothered by the daily lurid details

of the passion-arousing disasters at the seat of war. Indeed, whatever of a peace-and-good-will or Christian camaraderie there remains for the time being in our twentieth century civilization, the spirit of recalcitrancy has its eye upon it, not to pat it or pet it, but rather to make a martyr of it, should it dare to run counter to this irrational prejudice or that blinding passion.

War and peace are collaterals; but all during the past year or more they have been held up as being at daggers drawn, as separate and distinct ethical entities. Talk of peace in these times of blood-shedding and destruction of property, and some patron of militancy is all but sure to look upon you as being fit to be dragged from the ranks of patriotism and be pilloried for treason against common-sense; while let one uphold war as an outcome of the economy of nature or a divine necessity in the order of things, in the hearing of the advocate of peace-at-any-price, and he is in immedate danger of being misunderstood, if not condemned as a traitor to something or other. And thus is it that humanity, while the events of the war keep exciting us all, is rather a ticklish arena in which to go out in search for the wisdom necessary for the proper up-bringing of the world, when it comes to enter upon the novitiate of its new birth, giving due heed to the moral forces in its continuing environment. If there is to be fault-finding over the world's having to put up with consecutive periods of war and peace, that fault-finding, as a pricking of the communal conscience or as a corrective of national and international relations, may, as heretofore, come to be left in the hands of our "prophets, priests, and rulers." For where is the communal conscience to be located as the nucleus of wisdom, if it be not in the keeping of our leaders of thought and influence. Sought for elsewhere the communal conscience is like to be more or less of an abstraction, good or bad as one finds it convenient or inconvenient, as far as the unthinking are concerned.

A few men, reckless of consequences, brought on the war. The communal conscience, or what there was left of it, had no direction of their plans. And, as Dr. Jordan says, a few men equally as resolute could make war impossible. But something more than resoluteness would be necessary to give

the world a permanent peace at the say of a few men. The maintaining of peace involves the doing away with the incentives to war. A communal conscience alone can remove these. If a re-quickened communal conscience were brought to act in both cases, then would it be just as easy for a few resolute men to entrust themselves with the task of finding a substitute for war in the settling of national and international disputes, as it has been for a few resolute men in the past to inaugurate a war in line with their neglect of the communal conscience or in the absence of such a guidance. War has always been, and war will always be, says the unthinking war-apologist, much as if he were to say there have always been thunder-storms, and there will always be thunder-storms, taking no account of the freedom of man's will being an element in the one case and not in the other. Let the communal conscience be remodelled and redirected by our "prophets, priests, and rulers" in line with common-sense, and peace will not do away with war, since it cannot, being war's co-relative; but it will do away with the war that murders men, women and children, kills off by the millions irresponsible battlefield agents, and destroys whatever it can lay its hands upon out of the nation's needs.

The wisdom of our "prophets" has, alas, seldom had any support from the waywardness of the ordinary. Its only protection from man's mixed way of looking at things has been the soundness of its logic. The wisdom of our "priests" has more often than otherwise been prone to seek a convenient shelter, in case of impending danger to their methods of up-bringing, behind their professional anathemas and traditional orthodoxies. While our supreme "rulers" and their associates of kindred prestige have usually to qualify their wisdom in terms of a patriotism, sound or unsound, which seems to rally to their support for a longer or shorter period of school-mastering. And, if, as heretofore, the world is going to be as ready, after entering upon the novitiate of its new-birth, to stone its "prophets"; or to join in the game of make-believe with the half-and-half up-bringing from the *convenances* of ecclesiasticism; or listlessly to pay respect to the mandates of those sharing in the commonwealth of nations, being little else than "scraps of paper" with no steadfastness of the "word that is as good as a bond" about them, then may the world hardly

expect to come into any better a way of being brought up, at the hands of a re-located necessary wisdom, than it has hitherto been wont to walk in, with war breaking out in times of peace and prosperity, and peace following after war in historic consecutiveness.

And so, in our expectancy of seeing the communal conscience re-quickened in order to be of full service in a world about to be re-edified after the war, how are we to get at the wisdom that is to bring about the right kind of re-edification? Are we, the people, only as yet a half-born democracy, to stand listlessly by, while our "prophets" continue to be stoned and their pleadings, in behalf of the re-quickening of the communal conscience, pooh-poohed by our *currente calamo* critics or laughed to scorn in a stanza or two of Kiplinesque ragtime. Is the mantle of prophecy to be relegated to the shoulders of the ephemeral novel? Is the literature that is literature still to be looked askance at? Are the newspaper records of wars and rumours of war still to hold a first place in the new-born world's up-bringing? Is the rush-and-tumble after money and pleasure and all the rest of it to continue after the war as before it? Is the confounding of the great with the little, of true fame with notoriety, of heroism with theatrical display, still to hold its place as a daily use-and-wont, that must neither be revised nor otherwise interfered with?

The politician, with an election evidently in the corner of his eye, as some think, ventures to tell us some of the contents of a wholesome communal conscience. The Hon. Elihu Root, who as the most of us know failed to see inaugurated an International Supreme Court of Justice in connection with the the Hague Council Conferences, comes forward to tell our "prophets, priests and rulers" what rôle they ought to play to bring on war as a means of upholding the prestige and honour of a nation. He tells them plainly that they are to be blamed for not doing what it is impossible to do in the meantime, and with what there was of an international conscience torn to tatters by a would-be super-militant with "the largest army possible" behind him to keep up his round of interim irresistible diabolisms. Had Senator Root only succeeded in his enterprise of seeing an International Supreme Court of Justice established in Europe with a rallying international force of

some kind or other to uphold its decrees, German Odinism might have been less heedless of remonstrances from the rest of the nations. It is easy to know what has been, and what ought to have been, but it is much more difficult to get the world to agree as to what ought to be. And it is pleasant to find in what Mr. Root has been saying, during his recalcitrant mood, the enunciation of what ought to be an element in a wholesome communal conscience acceptable by everybody. While speaking for the American democracy, he virtually speaks for all the nations:

“Our democracy stands for something more than beef and cotton and grain and manufactures—stands for something that cannot be measured by rates of exchange, and does not rise and fall with the balance of trade.

“With us, liberty means not merely liberty for ourselves alone, but for all who are oppressed. Justice means not justice for one nation, but a shield for all who are weak against the aggression of the strong. When our deeper natures are stirred, they have a spiritual vision in which the spread and perfection of free self-government shall rescue the humble who toil and endure from the hideous wrongs inflicted upon them by ambition and lust of power. They cherish in our heart of hearts an ideal of one's country loyal to the mission of liberty for the uplifting of the oppressed and the bringing in of the rule of righteousness and peace.”

As for the opinion of others, Mr. Henry Ford has said in his booklet on peace: “In all the history of civilization, I cannot find one man (that is, one true prophet, he might have said) who has justified war,” though he allows Mr. Henry B. Joy, in the same booklet, to return him this for an answer: “There is the strong feeling in my mind that to talk in behalf of peace at the present moment in the United States, no matter how earnestly we all as a people desire peace in the world, is to embarrass our government in its sincere efforts to maintain peace with honour and national self-respect.” And President Wilson, in one of his messages to Congress, has laid it down as an axiom of international ethics that there should always be some part of the family of nations eager to keep the processes of peace alive, “if only to prevent economic ruin and

the breakdown throughout the world of the industries by which its populations are fed and sustained."

And if such views as these, from the less intellectual to the higher in our public life, have to be stormed at by our war-mongers and peace-at-any-price advocates, what a frisking out of court is there going to be for any attempt to locate the wisdom that one would see appointed as the wet-nurse of a world about to become regenerate. In fact, all our "prophets" who have not yet been stoned to death, have taken up with the mission, which our democracies, with any tongue to them, are assuredly in the way of taking up with, namely the mission of bringing us to understand how to handle the right that is the true might in such a way as to maintain it without having recourse to the shedding of blood and the destruction of millions upon millions worth of property. This has ever been the pleading of the true "prophet," call him by whatever other name we may, with the communal interest in view and the communal conscience under his tuition. This has been the pleading of the founder of the Temple of Peace at the Hague, as expressed in his writings and in his benefactions to promote peace. This is the pleading of the multi-millionaire of Detroit who has lately told us, in face of the ridicule he has had to meet, that he is prepared to set aside the greater part of his wealth to inaugurate and pursue a propaganda in favour of our civilization getting rid of wars of the blood-letting kind.

Indeed, the wisdom that is to undertake the up-bringing of the world, when once the throes of its new birth have come to an end, has to have this as a fundamental item in its creed, namely, that there must be some kind of a restraint put upon the ethical tendencies that make for war of the militant-mad sort. There ought to be no neglect of what is necessary to uphold the right as a national or international birthright. There must be no setting aside of the momentous problem by any derision of its details. And what one would ask of the world's friends in the meantime, while we are all more or less demented over the imminent agonies of the war that is now raging, is that they should subdue the inclination to throw stones at our "prophets" be they war-advocates or peace-pleaders. Peace and strife are collaterals, not inveterate foes.

There must be strife, if there is to be progress. But the folly of putting to death millions of human lives and destroying billions' worth of property so necessary to the progress that strife begets is nothing short of diabolism let loose. Let the professional militant say what he may in his outcry for a permanent job, and let him have his job, too, for the protection of society, though not "in any largest army possible" and out of all proportion to any nation's needs. But let no one turn his back on the ample proof there is that international disputes can be settled without having recourse to the spilling of human blood, as it is to be seen in the annals of the Hundred Years Peace between Britain and the United States, which led to the enhancing of Canada's status as an intrinsic part of the British Empire and a next-door neighbour of the American Republic.

Nor may our "priests" any more than our "prophets" shun their legitimate sharing in the up-bringing of the world, after it has escaped from the changing fortunes and frightful atrocities of the present war. It may be looked upon as somewhat rash for a layman to say what he thinks about the wider Christian camaraderie our clergymen ought to have it in mind to mature from church to church and from congregation to congregation after the war is over, if not while it lasts. As the Bishop of Carlisle has lately been saying: 'In the trenches our men are quietly learning to probe to the realities of things. Those who return will no longer be satisfied with the husks of tradition—with ceremonies and ordinances and the commandments of men. They will require a religion which is moral towards God and moral towards man. Conformity and Non-Conformity will take on new meanings. The real Conformists in God's sight will be the Non-Conformists to the world spirit, and the Conformists to the world spirit will be the Non-Conformists displeasing to God. If the Church of Christ had continued to lay the emphasis of the gospel where its Founder laid it, divisions in the Church would have long ceased and wars have become impossible. The present war proves the complete and final bankruptcy of professional and hierarchical Christianity. In the coming age, (that is when the world gets the better of its new-birth throes) that Church will be found safest, strongest, most glorious in the eyes of

men, and most holy in the sight of God, which uplifts as its most fascinating ideal and all absorbing purpose, the comradeship of Christians, the "Love One Another" which Jesus of Nazareth handed down as the great primary fact in Christianity."

And now how many stones, it may well be asked, are to be directed at Dr. Kibble, the Bishop of Carlisle, and his pleading against bloodshed and diabolism, as adjuncts to the legitimate strife that promotes progress? There is in his words a hint as to the kind of wisdom that would institute for a world born anew, a training that would make of it a more desirable place to live in, than it has been during the war or even before it began. Through the instrumentality of the Christian Churches, with their *isms* all sorted out into the one grand but simple Christism which Jesus of Nazareth inaugurated, the world's training toward an after-adolescence, effectively moral, would surely bring us all to see that the destructive forces which make for battlefield blood-shedding and militant diablerie are entirely out of keeping with an advancing twentieth century civilization. Under the strenuous guidance of our "prophets and priests", with the communal interest for the most part in view, what nation, big or little, would fail to see that it is its duty to share in the moral responsibilities of its sister nations, in enforcing, without the shedding of blood, right and justice in the world, in terms that may be instinctively upheld as fundamental axioms of international law. This is all mere theorizing, says some one with a stone in his hand to throw at the theorizers. But it is common-sense and in line with what ought to be the communal conscience of the world that would be born anew, and may lead to the locating in some way or another the wisdom that is needed for its up-bringing after the war has exhausted itself to the subdual of the Odinism that brought it on.

Nor otherwise are our "rulers" supreme and of lower degree, to be exempt from re-shaping their functions, or having them re-shaped for them, in order that they may take a co-operative part in the up-bringing of the world in the future more than they have been allowed by the stone-throwers in the past. We have given the great fundamental principle which is agitating the mind of the Hon. Elihu Root as to what

wisdom's duty will be when it comes to tackle its task of up-bringing. We also might speak of the philanthropic notions of Mr. Henry Ford in the same direction, had he not brought down upon him an avalanche of blame for attempting to do what Mr. Root would have President Wilson attempt to do, namely, to check what cannot possibly be checked until the diabolism of Odinism has been brought to its bearings by force of arms. Had there been an International Supreme Court of Justice established at the Hague in line with Mr. Root's well thought out scheme, the protests of that Court against the dastardly breach of the neutrality of Belgium would have been jeered at by the German marauder on his way to Paris, as would have undoubtedly been a protest from Washington, with no "largest army possible" to back them up. We all feel that such a protest ought to have been made, however it would have been received. And we feel that Mr. Ford's impulse might have been otherwise directed, in line with his other philanthropies that once gratified the world so much. And so, with others who would handle events in the light of their personal judgment. Let us deal with their efforts to get after the wisdom that would set the world to rights, as if there might be something in these efforts of service to the world and not mere food for laughter and denunciation.

Had there been in Berlin a Sir Edward Grey, with no professional militancy barking at his heels for a job, as there was in London and at Washington, there would have been in all likelihood no war. And now that there is at Washington a diplomacy, doing its best, or its worst as some would say, to obviate the blood-letting process of settling international disputes, surely we have patience enough to deal gently with our "rulers" and those of their kind, as they take up with the mission in common with our "prophets and priests" for a wiser up-bringing of the world when it comes within the environment of a permanent peace. When once the use-and-wont of a professional militancy, that has wormed its way, and still keeps worming its way into our international diplomacy, has been re-directed by common-sense acting as its monitor for the protection of each nation internally acting in concert with the other nations for the disciplining of a marauder who would disturb international relationships, no one will surely fail to stay

his stone-throwing at those who would strive to locate the necessary wisdom in our ethics for the making of the world better than it has been.

President Wilson has been blamed for a defective statesmanship. Even Sir Edward Grey has been blamed for certain defects in his statesmanship. The Right Hon. Lloyd George was at one time defamed from one end of the British Empire to the other, only to be restored to public favour of the widest compass, when once the common-sense of certain of his contemporaries came to his rescue. And we have had instances of this usurpation of the fault-finder ever since the war began, ever since the Kaiser of Germany set remonstrance at defiance. And it is amid the disasters following such a defiance, that our civilization would have recourse to our "prophets, priests, and rulers or kings" to promote a communal conscience, and an international one too, as a helpmate to the wisdom that may stand as a right kind of foster-parent to the world on its way, let us hope, to an adolescence unstained by battle-field bloodshed.

Naturally enough, one cannot keep from putting the question: How is this function of foster-parentage to be undertaken by wisdom? And that question cannot well be answered until some concrete developments mature in a propaganda for the leading of our democracies away from the habit of fault-finding towards a calculating discernment of what is for the public good and what is not. The ordinary citizen must be induced to creep into the statesmanship of our "prophets, priests, and rulers." That is the only way of an escape from the democracy that gives heed overmuch to its own passions and prejudice. Be a statesman on your own account, or be sure to select a proven statesman for your leader! Passion and prejudice form but poor provender with which to feed ignorance into a statesmanship. Indeed it is that kind of feeding which dulls the communal conscience, and that more particularly when the war-cry is raised. The problem for wisdom to solve is the most momentous problem of these times. It is in fact enough to turn grey every hair in the head of our most conscientious "prophets, priests, and kings" gifted with the true statesmanship. Can it be solved?

For instance, Miss Grace Wales, a delegate to the Women's International Congress at the Hague, speaking of the dilatori-

ness of President Wilson in telling the truth to the German people, claims that a very large number of Americans still feel regret that the Cabinet at Washington did not make a more immediate protest against Germany's breach of the international findings of the Hague Council. "But of course," she says, "in a large democratic country like the United States there are people of diverse ways of thinking; and no government in its policy can instantly be made to embody every phase of public opinion from the Atlantic to the Pacific. It takes time for a hundred millions of people to see eye to eye in a case of this kind in which there is a death-struggle inaugurated so suddenly between the civilization of live-and-let-live and a professional militancy a-throb to uphold an absolutism that would provide them with a better paying job." In other words, Miss Wales might as well have thrown a doubt on the keenness of the national or communal conscience of the United States, whose people never think of following as a whole the wisdom of their supreme ruler in a matter of right and wrong. And, if the people of the United States be so far from possessing a keenly quickened communal conscience, what is going to be said of the German people. If the "prophets, priests and rulers" of the United States are to have a hard task in maturing a communal conscience for the guidance of their nationalism, how is it going to be with the "prophets, priests and rulers" of disintegrated Germany after the war?

It has been said often enough that the present war is likely to end at its soonest when the German people come to see that they have been fooled by their militant rulers. Some say that they are still a long way from this. But unless they are "born-fools" which they certainly are not, they cannot but be getting to see things in their right light, let the truth be withheld from them as strenuously as it may by the Kaiser and his. They have been, it is true, holding in pawn their birth-right of a communal conscience, for the last forty years. They have been told that militancy is the only way of upholding peace, and now they are trying to deceive themselves while they are at war with the neighboring nations in order to secure peace for Germany, as they say.

"The truth of what has been happening," says Miss Wales, "is carefully concealed from the German people. They have

been given a mistaken idea as to why this war was started, and about how it has been carried on, as well as to what the final issue of it may be. The atrocities indulged in by their own soldiers are largely kept from them, though of course terrible things are told to them about the atrocities of the soldiers of Great Britain and her Allies. As the Secretary of the British Ambassador in Holland lately told Miss Wales: The great thing for us to do is to get our ideas into Germany, by a cordination of ethics that may lead to the fixing up again of an international conscience that will secure for the world eventually a lasting peace for a century or two.

And again some one will throw out the appalling query: How is this to be done? And the answer to that query comes from the Detroit millionaire who has told us that he is prepared to set aside a large fund, to inaugurate a peace-educational campaign throughout the nations of the earth—not an avenging campaign against the welfare of the people of Germany, nor a campaign against the views held by certain hyphenates in the United States with a streak of Odinism still in their veins; but a peace-educational campaign “from which an international view may be developed in all our minds of the folly of war that involves the shedding of the blood of men, women, and children, and the destruction of property that has accumulated from the earnings of the ordinary citizen.”

And it is under the auspices of some such a propoganda, possibly to be widened out under Mr. Ford's auspices, should he have come to overlook the decrying of his later philanthropy by those who once vaunted his beneficence to the skies; it is by means of such a propoganda that American common-sense, and British common-sense and the common-sense of all the nations of the world may be co-ordinated into an international conscience that may locate the wisdom which will look after the moral and commercial welfare of the world, and do its best to bring it up in the way it should go, towards an adolescence it has never entered upon before. Let the illogical stone-thrower strain himself, as he may, in his dance around the flaws of his unthinking detection, in the advocacies of our well-balanced “prophets, priests and rulers or kings”, there are few who will not take part in the mission of the statesmanship that would make the world better

by a conscientious attempt to co-ordinate peace and war as collaterals and not as antagonists at daggers drawn. Such a plea as the above has no place as an interruption to the bloodless strife or rivalry that makes for international progress. Such emulation, rivalry or strife for the mastery there must always be, alike between men and nations. The plea is denunciatory of the national and international quarrels that see their ending only in the shedding of human blood. As has been said, for a full century the disputings between Britain and the United States have had no blood-letting in their settlement; and what has been done in one historical instance may surely be safely repeated, with wisdom keen enough again to abide by the international conscience while doing the school-mastering of the nations.

And let no one construe a single phrase in the above pleading as suggestive of any interruption to the patriotism that is afire at the present moment all over the civilized world against the Odinic diablerie that has let itself loose to overturn law-and-order among the nations. The reception which has been given to Mr. Ford's rush into the midst of things is the reception which is in store for any one venturing to stay the hand of Great Britain and her Allies while they place an effective check by force of arms on German diabolism. The fight that is on must be persevered in, until that diabolism has been fettered for all time. Whoever or whatever is to be blamed for the outburst, there can be no expectancy of enduring peace until Germany acknowledges its wrong-doing and is prepared to submit for all time to come to the dictates of a re-coordinated international conscience such as was being matured by the Hague Conferences. There can be no stay in the mobilizing of troops, no breaking in upon our patriotic activities, until Germany has been made to learn that the safe-keeping of the world has to be placed in the hands of a world-wide rule for the protection of our Christian civilization, as it gives heed to the fundamentals of morality in international relationships as in all other communal relationships. To hope for a renaissance of an international conscience before that is done is a hope that is never likely to be realized. Viscount Bryce says much the same thing, though indirectly, when he advises those who have undertaken to bring German Odinism to its bearings, not to

attempt to circumvent diablerie by indulging in diablerie. Britain and her Allies are fighting to-day for the survival of our Christian morality, he says; and they cannot afford to alienate the sympathy which their humane conduct has so far gained for them in every nation that has not been brought under the outraging method of Odinic warfare.

Quebec.

J. M. HARPER.

NATURAL MEASUREMENT OF TIME.

THE MONTH.

The word month is from the same root as the word moon. And although in modern times the month has been fixed at different lengths by different nations, yet the original meaning of a *month* was the length of time elapsing between two consecutive new moons, the civil month, like the civil year, being counted as a whole number of days. On the other hand, the more modern word *lunation* means the exact time elapsing between two consecutive new moons.

This usage of dividing time into months and of counting time by months, is a very natural and a very ancient one; and ever since man began to count the passing of time, the month appears to have been an important time unit.

There are 12 moons or lunations in a year, with about 11 days over, and this circumstance has given rise to the importance of the number 12 in many old speculations and religious systems. The surplus of 11 days works into some modern religio-astronomic considerations which will be referred to later.

In astronomy, ancient and modern, the number 12 is perpetuated in the 12 signs of the zodiac, the 12 houses of the astrologer, the 12 months of the year, the 12 hours of the day and the 12 hours of the night, etc. And it is doubtful if the moon has not played even a more important part than the sun in fixing and regulating both ancient and modern customs and ceremonies.

To all ancient people who had no real knowledge or correct ideas of the relative sizes and distances of the heavenly bodies, the sun and the moon appeared to be, and therefore were assumed to be, of nearly equal importance, each in its own way. And in the ancient Hebrew records they are spoken of as two great lights, the greater light being made to rule the day, and the lesser light to rule the night.

In a way both of these bodies were worshipped as gods, and the character and extent of that worship may be deduced from the following hymns chanted or sung by the priests of ancient Babylon and Egypt:—

"Oh sun-god on the horizon thou dawnest,
"The bolt of pure heaven thou openest.
"The door of heaven thou openest.
"Oh sun-god thou liftest up thy head to the world,
"Thou coverest the earth with the majesty of thy brightness."

Also—

"Come to me, O thou sun, Horus of the horizon give me help;
"Oh Horus of the horizon there is none other beside thee,
"Protector of millions, deliverer of tens of millions."

It should be pointed out that sun-god is here the translation of a single word which means the sun as a god. In very early times and amongst many ancient peoples, if not all, the moon-god was placed even above the sun-god in their order of worship. This is known to have been the case in the Chaldean city of Ur, the early home of the father of the Hebrew people, and in Haran to which he emigrated. And some critics are of the opinion that the story of the 12 sons of Jacob, and the 12 tribes of Israel has reference to the 12 moons of the year or to the 12 signs of the zodiac.

Why a people should place the moon before the sun as an object of worship is probably not difficult of explanation.

These early people with only the crudest and most meagre appliances for artificial illumination, were forced to depend, nearly altogether, upon the light of the sun, or upon that of the moon. They dreaded the night and the darkness that enveloped it. Night was the time when savage animals and even more savage men and enemies prowled in search of their prey. Night was the time when ghosts and witches, the spirits of the dead and all kinds of uncanny things held high revel—the time when fears took possession of the heart and the imagination ran riot.

Anything that relieved the surrounding gloom, and brought hope to the depressed spirit, was hailed as a giver of good and greeted by the thankful hymns and services of priests and people. Thus, the dawn, which came as a relief from darkness, and as a harbinger of the coming day, when vision would be clear and men might go about their usual work in safety, was an object of adoration, as appears from the following vedic hymn translated by the late Max Muller:—

"She shines upon us like a young wife,
"Raising every living being to go to work;
"When the fire had to be kindled by men,
"She made the light by striking down darkness.
"She rose up spreading far and wide and moving everywhere;
"She grew in brightness, wearing her brilliant garment,
"The mother of the mornings, the leader of the days.
"She shone gold colored, lovely to behold.
"She the fortunate, who brings the eye of the gods,
"Who leads the white and lovely steeds;
"The Dawn was seen revealed by her rays, her brilliant tresses.
"Thou art a blessing when thou art near.
"Raise up wealth to thy worshippers thou mighty Dawn.
"Shine for us with thy best rays thou bright Dawn,
"Thou daughter of the sky, thou high-born Dawn."

So after a series of dark and gloomy nights, the new moon coming in with evening crescent, and as an earnest of better things to come, was greeted by hymns and feasts and various ceremonies.

Besides, the new moon was a watched-for monthly visitor, and a phenomenon which divided the passing time into regular and convenient units. And it may be safely said that, with the exception of the return of day and night, there is no other celestial phenomenon so harmonious and pleasant as that of the new moon. For although the change of seasons has a far-reaching effect upon terrestrial nature as a whole, the variation in the seasons is proverbially uncertain, and of little effect in tropical regions, while the moon pursues its course and runs through its changes for all the world to look upon and admire.

The echo of the ancient homage paid to the moon has come down through all the ages, and it is to be found amongst some primitive people even now. Most of the old Hebrew feasts and fasts, even down to the Passover itself, were connected with the movements of the moon, and the modern feast of Easter is rigidly so connected even now.

And Captain Speke, in his travels about Lake Victoria N'yanza in Central Africa, gives, in some detail, an account of the feast of the new moon as carried out by King Ruman'ika and his warriors, but he says nothing about any ceremonies designed to do honor to the sun.

Some primitive races, that is primitive in development, counted their time by moons, without any particular reference to years. This was the case some years ago with many of the

tribes of North American Indians, and where they have not come into close contact with the civilization of the whites, it is probably the case still.

Thus they spoke of a past event as being so many moons ago, and they counted their ages by moons, but also sometimes by seasons, as so many winters, or so many summers, especially in latitudes where these seasons were prominent. The different moons in the year, they distinguished by seasonal characteristics, as the moon of green grass, the strawberry moon, etc. This was a very natural and convenient mode of counting time, and it is not to be wondered at that it should have once been in quite general use. In fact, the French revolutionary calendar followed much the same principle, at least, in naming the months.

In the Hebrew book of Genesis we read of an antediluvian patriarch who reached the wonderful age of 969 years. If this number means moons instead of years as reckoned to-day, this patriarch would have died at about 80, which is a respectable old age even now. So that if the story is not to be treated as a myth we have to choose between two conclusions—either that these antediluvians counted their ages by moons, or that the laws and principles that regulate and control the length of human life were most profoundly modified by a catastrophe which otherwise was quite local in character and effect.

On account of the incommensurability of the quantities concerned, the adapting of the month to the year, in such a manner as to make the relation between them fixed and perpetual, has always been attended with some difficulty, and this difficulty has been surmounted in different ways by different races of people. Some of these ways we go on to consider.

In the division of the year into 12 parts the word *month* has come to denote any one of these parts, whether such division has reference to the moon or not.

The Roman Calendar.

The Roman Calendar, especially as it existed after being brought into order by Julius Caesar, was the origin of the civil calendar as used at the present time in all European countries.

It consisted of 12 months, the names of which have been retained in our present civil calendar, and it began with the month of March, as these names indicate. For September,

October, November, and December mean respectively the seventh, eights, ninth, and tenth months, showing March to have been the first month.

The calendar, as it existed previous to the time of Julius Caesar, was in great confusion owing to the special changes that had been made in it from time to time during the long previous period of Roman history. And Caesar, following the advice of Sosigenes, the Egyptian astronomer, ordered that henceforth every ordinary year should consist of 365 days, and that an intercalary day should be added to every fourth year making it to contain 366 days.

This was equivalent to making the year, on the average, to consist of $365\frac{1}{4}$ days, and this is frequently spoken of as the Julian year.

He ordered also that the odd months, that is March, May, July, September, November, and January should each consist of 31 days, and the remaining months of 30 days each, except that February should contain 29 days in common years and 30 days in intercalary or leap years.

The Julian Calendar stood as follows:—

March31,	July31;	November . . .31,
April30,	August30,	December . . .30,
May31,	September . .31,	January31,
June30,	October30,	February .29, 30.

No question can be raised as to the simplicity and perfection of this arrangement, and it would have been of considerable advantage to the world if it had been kept intact, except as to the Gregorian improvement.

But two changes were made in it, both of which must be looked upon as evils, inasmuch as they, to a certain extent, complicated the calendar without introducing any compensating advantage.

One of these was the change of the beginning of the year from March to January, thus bringing the intercalated day of February to the close of the second month, instead of leaving it at the end of the year where simplicity requires that it should be.

The other was the change wrought by Augustus Caesar, when, through jealousy at having a month named July, after Julius Caesar, with 31 days, while his namesake, August, had

only 30, he ordered that August should be given 31 days. This brought three 31-day months together. And to prevent this a day was taken from each of September and November and given to October and December; while February was reduced to 28 in common years and 29 in leap years.

And thus by the vanity of an arbitrary monarch, who thought not only that he reigned by divine right, but that he himself was partly divine, the European world was saddled with the irregular system of months that it has to-day.

The Romans had a very peculiar method of numbering the days of the month—a method that is best described as a rather stupid inversion of simplicity.

The months were divided into four groups, as follows:—

Group I—March, May, July, October.

Group II—January, August, December.

Group III—April, June, September, November.

Group IV—February.

The first day of a month was called its *Kalends*—the word from which comes *Calendar*.

In the months of the first group the 7th day was the *Nones*, and the 15th day the *Ides*.

In the months of the other groups the 5th day was the *Nones*, and the 13th day was the *Ides*.

After the *Kalends* were passed, the succeeding days were counted backwards from the *Nones*; after the *Nones* were passed they were counted backwards from the *Ides*; and after the *Ides* were passed they were counted backwards from the *Kalends* of the following month.

The following schemes will probably make it clear.

Denote *Kalends*, *Nones*, and *Ides* by *K*, *N*, and *I* respectively; and let *D* denote any day of the month according to our modern notation.

Group.	Roman-Notation.
I. <i>D</i> lies between 1 and 7	8- <i>D</i> before the <i>N</i> .
<i>D</i> lies between 7 and 15	16- <i>D</i> before the <i>I</i> .
<i>D</i> exceeds 15	33- <i>D</i> before the <i>K</i> .
	of the following month.

II.	<i>D</i> lies between 1 and 5	6- <i>D</i> before the <i>N</i> .
	<i>D</i> lies between 5 and 13	14- <i>D</i> before the <i>I</i> .
	<i>D</i> exceeds 13	33- <i>D</i> before the <i>K</i> . of the following month.

III,	<i>D</i> lies between 1 and 5	6- <i>D</i> before the <i>N</i> .
	<i>D</i> lies between 5 and 13	14- <i>D</i> before the <i>I</i> .
	<i>D</i> exceeds 13	32- <i>D</i> before the <i>K</i> . of the following month.

IV.	<i>D</i> lies between 1 and 5	6- <i>D</i> before the <i>N</i> .
	<i>D</i> lies between 5 and 13	14- <i>D</i> before the <i>I</i> .
	<i>D</i> exceeds 13	30- <i>D</i> before the <i>K</i> . of the following month.

Where 8—*D* denotes that the number denoted by *D* is to be taken from 8; 33—*D* denotes that the number denoted by *D* is to be taken from 33, etc.

Examples:

Mar. 4th is the 4th before the Nones.

Mar. 10th is the 6th before the Ides.

Mar. 24th is the 9th before the Kalends of April.

June 2nd is the 4th before the Nones.

June 18th is the 14th before the Kalends of July.

But in every case, if the remainder, when subtracting *D* becomes 2, it is called *pridie*, that is the day before. Thus Jan. 31st is *pridie Kalendus Februarius*, or the day before the Kalends of February.

Connection Between Month and Week.

The connection between the month and the week in the Gregorian calendar is somewhat complex, and, as it is not easily reduced to a simple rule, it becomes more or less a matter of memory.

As 52 weeks contain 364 days, or one day less than the common year, we see that any given day of a given month advances by one day of the week in a common year, and by two days in a leap year. But, because the additional day for leap year is added on at the end of February the advance of two days for leap year takes place only for dates lying between March 1st of the leap year and March 1st of the following year.

Thus: Jan. 12th, 1915, is Tuesday....May 11th, 1915, is Tuesday.
 Jan. 12th, 1916, is Wednesday..May 11th, 1916, is Thursday.
 Jan. 12th, 1917, is Friday.....May 11th, 1917, is Friday

It will be noticed that, in passing from 1915 to 1916, for a date in January we add one day, while for a date in May we add on two days. And again, in passing from 1916 to 1917, we add on two days for a date in January, and one day for a date in May.

These changes, which are rather confusing, would be largely avoided by making the year begin on the first of March, as the Romans did, or by making December instead of February the intercalary month with the year beginning as it does at present, on Jan. 1st.

Of course, the easiest way to find the day of the week corresponding to any day of any month in the passing year, is to consult an almanac for the year. Or the same thing can be done for any year by consulting a perpetual calendar.

Our purpose here, however, is to find a relation that shall be good for every year of the twentieth century. As we can work only by means of numbers, we must affix numbers to the days of the week. And as Sunday is usually called the first day of the week we shall give it the number 1, and thus adopt the following scheme of numbers:—

Day of Week . .	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
Number	1	2	3	4	5	6	7

A common year contains 52 weeks and 1 day, and a leap year contains 52 weeks and 2 days. So that Jan. 1st advances by 1 day of the week in each common year, and by 2 days in each leap year.

If, then, y denotes a number of years, counting from a given epoch, we must add on 1 day for every year, and an additional day every fourth year. This is expressed by y +integral part of $\frac{1}{4} y$.

But as the week numbers go no higher than 7, we cast out, from this value, all the 7s and retain the remainder only. And thus the number of days of the week to be added after y years is—

Remainder from $(y + \text{integral part of } \frac{1}{4} y) \div 7$.

This is more concisely expressed by the symbolic form—

$$\text{Rem. } [y + (\frac{1}{4} y)_w] \div 7.$$

Where the w written after and below the small bracket denotes that the integral part of the quantity within the bracket is to be taken.

This remainder is the all important quantity in this consideration, and we shall denote it by R . And thus,

$$R = \text{rem. } [y + (\frac{1}{4} y)_w] \div 7.$$

Now it is most natural to start our count at the beginning of the century, so that y shall denote the year of the century.

Thus for 1900, $R=0$ or 7, for as zero does not occur in the week numbers, we increase it by 7 days, or a whole week. For 1918, $R=1$; for 1952, $R=2$; etc.

Now, we know that 1903, which was a common year, came in on Thursday, whose number is 5; that 1904, which was a leap year, came in on Friday, whose number is 6; and that 1905 came in on Sunday, whose number is 1. And the R s for these three years are respectively 3, 5, and 6.

So that for any year in the 20th century we have—

$$\text{Jan. 1st} = R - \begin{cases} 5 \text{ for common yrs.} \\ 6 \text{ for leap yrs.} \end{cases}$$

Or, to find the day number for Jan. 1st we subtract 5 from R if it be a common year, and 6 from R if it be a leap year.

Thus for 1927 the number of the year in the century is 27. And $27+6=33$, which divided by 7 gives a remainder $R=5$. Then, as 1927 is a common year, $R-5=0$ or 7, and the year begins on Saturday.

In a similar manner we find for 1984, $R=7$, and as 1984 is a leap year, $R-6=1$, and the year begins on Sunday.

In a similar manner we find for future centuries—

21st C.	22nd C.	23rd C.
Jan. 1st $R - \begin{cases} 6 \text{ c. yr.} \\ 0 \text{ l. yr.} \end{cases}$	$R - \begin{cases} 1 \text{ c. yr.} \\ 2 \text{ l. yr.} \end{cases}$	$R - \begin{cases} 3 \text{ c. yr.} \\ 4 \text{ l. yr.} \end{cases}$

To find the first Sunday of the year.

It is readily seen that if n be the week number of Jan. 1st, the expression $9-n$ will be the date of the first Sunday for all values of n , rejecting 7 where the difference is above 7.

But $n = R - \left(\begin{array}{c} 5 \text{ c. yr.} \\ 6 \text{ l. yr.} \end{array} \text{ and } 9 - n = 7 \right) - R \left| \begin{array}{c} \text{c. yr.} \\ \text{l. yr.} \end{array} \right|$

And $\begin{array}{c} 7 \\ 1 \end{array} \left| -R \right| \begin{array}{c} \text{c. yr.} \\ \text{l. yr.} \end{array}$ is the first Sunday of the year.

For 1916, $R=6$, and it being a leap year, Jan. 2nd is the first Sunday.
For 1925, $R=3$, and Jan. 4th is the first Sunday; etc.

Then, to find the day of the week corresponding to any day of the year, of which the first day of the year is known, we have the following:—

The 1st of October you'll find if you try,
The 2nd of April as well as July,
The 3rd of September and also December,
The 4th day of June and no other, remember,
The 5th of the leap month, of March, and November,
The 6th day of August, and 7th of May
Agree with the first in the name of the day.
But do not forget that when leap year is reckoned,
From the first of March on they agree with the second.

This little verse is easily memorized, and it forms the key to the whole matter. Some illustrations follow:—

1. To find the day of the week corresponding to May 24th, 1939. This year is not a leap year, and we readily find that its first day is Sunday.

Therefore May 7th is Sunday, and hence May 24th is Wednesday.

2. To find the date of the 3rd Sunday in August, 1948. This is a leap year and it begins on Thursday.

Hence Aug. 6th is Friday, and we see that the 1st, 8th, and 15th are the first three Sundays in August.

Relations between the Year and the Moon's Changes.

In correlating the day of the month and the day of the week we have a relationship involving only whole days and applicable to the whole world.

But when we endeavor to connect the days of the year with the changes of the moon the case is quite different. For the occurrence of a new moon is an absolute event for the whole world. And being quite independent of local time, it necessarily occurs at different hours of the day, and in certain cases even on different days at different localities.

Thus, counting in standard time, if a new moon happens at 2 a.m., say, on Monday in England, it happens at 9 p.m. on Sunday in Ontario.

Now, an almanac for a given locality gives the times of the moon's changes for that locality only, and is not directly suited to any locality which differs much from the first one in its local time. But a lunar calendar, or at least the lunar calendar which we propose to consider, is intended to hold good in its statements, not for a particular place, but for the whole world. And as one of its chief purposes is to regulate the movable feasts of the church, it is usually known as

THE ECCLESIASTIC CALENDAR.

Such a calendar can be constructed only on the principle of keeping as near as is practicable to the day upon which the moon's changes occur at some particular place, while counting by only whole days.

On this principle all divisions of the day are ignored and the day on which the new, or the full moon occurs is common to the whole world.

The moon that we are here dealing with is not, then, that of the heavens or of the almanac, but a special one invented for the purpose, and called the Ecclesiastic Moon.

If the length of the tropical year were commensurable with the length of a lunation, there would be a cycle of years in which the changes of the moon would exactly repeat themselves. And even where these two quantities are incommensurable, as they are, it is possible to find, by the method of continued fractions, any number of cycles of years in which the foregoing conditions are approximately fulfilled.

The most noted of these approximating cycles, and the one that lies at the foundation of the ecclesiastic calendar, is called the *Metonic Cycle*, from Meton, the Greek astronomer who discovered it.

This is a cycle of 19 years which includes almost exactly 235 lunations. So near, in fact, is the approximation that 235 lunations exceeds 19 years by only 2 hrs. and 6 minutes.

From this it is easily shown that it requires above eleven cycles, or upwards of 200 years, for this small error to amount to a single day.

So that if we know the days of the new moons for a cycle of 19 years, we know them for every cycle of 19 years for over 200 years to come.

By slight corrections, made when required, and mostly at the beginnings of full centuries, the cycle is kept good for all time.

The Golden Number.

The years of a Metonic Cycle are numbered from 1 to 19, and the number attached to any particular year is called the *Golden Number* for that year.

The name seems to have originated in the circumstance that this number was formerly thought to be of such importance that it was inscribed in letters of red or gold in the ephemeris of the year.

For convenience in some of its relations, a cycle was made to begin on the year preceding the first year of the Christian era. So that to find the golden number for any year we must count all the years from the first of this cycle up to the given year, reject all the full cycles of 19 years, and the surplus or remainder is the golden number required. Or in other words, we add 1 to the given year, divide by 19 and take the remainder.

Expressed symbolically this becomes—

$$G = [(1 + Y) \div 19]_r;$$

where G denotes golden number, Y the given year, and the r , written after and below the bracket, denotes that the remainder is the quantity required.

Thus the G of 1915 is 16, of 1945 it is 8, of 1988 it is 13; etc.

The Epact.

The *Epact* of a year is defined as the moon's age on the first day of the year.

The accepted length of a lunation is 29.5306 days, and there are 12 lunations in the tropical year with 10.875 days over.

But as fractions of a day are not admitted in this calendar, the lunation is taken to be 29 and 30 days, alternately, and the surplus as 11 days.

This, of course, introduces some error which would be accumulative were it not that the whole arrangement is made to depend upon the Metonic cycle, and starts anew with a new

cycle every 19 years. So that the only error that needs to be accounted for is the small one in the cycle itself, as the others are necessarily corrected at the beginning of each cycle.

Thus the epact, or the moon's age, increases by 11 days from the beginning of one year to the beginning of the next year.

If the epact for 1915 is 14, that for 1916 is 25, that for 1917 is 6, as we cast out the 30 days which form a full lunation. And thus the epacts for consecutive years are found by continually adding 11 and rejecting 30 whenever the sum is more than 30.

As the Metonic cycles give all the new moons to come, the epact must be dependent upon the golden number. We have, in fact, the following relation by which to calculate the epact—

$$E = \left\{ \frac{11G - 1}{30} \right\}_r - 1.$$

where E denotes the epact, G the golden number, and r , written after and below, that the remainder from the division is to be taken.

If $G=1$, $E=-1$, but as negative quantities are not admissible we add 30, a full lunation, and get 29.

If $G=6$, $E=24$; if $G=18$, $E=6$; etc.

The following table gives, for all possible golden numbers, the corresponding epacts from 1900 to 2200:

G	E	G	E	G	E	G	E	G	E
1....29		5....13		9....27		13....11		17....25	
2....10		6....24		10.... 8		14....22		18.... 6	
3....21		7.... 5		11....19		15.... 3		19....17	
4.... 2		8....16		12....30		16....14			

Owing to the small error in the Metonic cycle, and to the fact that, in the Gregorian calendar, only every fourth full century is a leap year, the epact has in general to be corrected by a day in each century.

But as these two sources of error act in opposite directions, and as the year 2000 is a leap year, it turns out that the epacts for the 20th century hold good for the 21st and 22nd centuries; so that the preceding table is good until the year 2199.

New Moons of the Year.

If E denote the epact of the year, $31-E$ gives the date of the new moon in January. As a lunation is very nearly $29\frac{1}{2}$ days, we add on alternately 29 days and 30 days, and subtract the number of days in the preceding month, in order to get the date of new moon in any given month. Thus as the new moon in January is $31-E$, that in February is $31-E+29-31$, or $29-E$. That for March is $29-E+30-28$, or $31-E$. That for April is $31-E+29-31$, or $29-E$; etc.

Hence we find the dates of the new moons of the year to be—

Jan.. $31-E$,	Apr.. $29-E$,	July.. $27-E$,	Oct.. $23-E$,
Feb.. $29-E$,	May.. $29-E$,	Aug.. $25-E$,	Nov.. $22-E$,
Mar.. $31-E$,	Jun.. $27-E$,	Sept.. $24-E$,	Dec.. $21-E$.

If E is greater than 21, some of these quantities will be negative. In this case we must borrow the days of the preceding month, and refer the moon to that month.

Thus for 1924 we have $E=24$. Hence for September we get zero. But as there are no zeros in the days of the month, we borrow 31 days from August and get August 31st for the day of a new moon. Similarly for October we borrow 30 days of September, making 53, from which we take 24, leaving the 29th of September; etc.

And the new moons for 1924, at least the ecclesiastic new moons, fall on Jan. 7th, Feb. 5th, Mar. 7th, Apr. 5th, May 5th, June 3rd, July 3rd, Aug. 1st, Aug. 31st, Sept. 29th, Oct. 29th, Nov. 28th, Dec. 27th. And the year contains 13 new moons.

It is readily seen that when E is greater than 21, there will be 13 new moons in the year, and that as E increases by 11 annually, this cannot happen oftener than once in three years.

Also, if E is 29 or 30, February will have no new moon.

In commenting on the foregoing method of finding the dates of the new moons through the machinery of the Golden Number and the Epact, it may be pointed out that the main purpose of the scheme is, without any real knowledge of astronomy or use of astronomical tables, to determine the proper date for Easter Sunday, and through it the dates of all the movable feasts of the church dependent upon Easter.

For this purpose the day of new moon must be common to all the world, in order that all people interested in it may keep the festival of Easter upon the same day.

But the new moon of the heavens does not generally occur on the same day for all places on earth, as has been already shown. Moreover, no simple scheme or formula that can be devised would be competent to give the changes of the real moon with any reasonable degree of accuracy, as the motions of the moon are very complex, and the lunations are not all of the same length.

It is only by the use of voluminous tables and long and operose calculations that the times of new moon, as predicted in the almanac, can be arrived at; and the accuracy thus obtained is quite unnecessary in the determination of Easter.

The Ecclesiastic moon and the machinery connected with it serve quite well the purpose for which they were devised. And although this fictitious moon may depart from the true by as much as even a couple of days at times, yet with the necessary correction in the epacts at century intervals, the scheme is perpetual in its application, and its results will be as correct in five thousand years to come as they are to-day.

And whatever one may think of the scheme as a whole, he cannot but admire the wisdom and the ingenuity that devised it. Besides it has been in use for a very long time, and it plays a somewhat important part in the history, and especially in the chronology of past times.

EASTER.

The feast of Easter (or Eostre) seems to have been derived from an old Teutonic feast in honor of the spring sun, or of the arrival of the sun at the vernal equinox. It was presumably taken into the Christian church as a sort of placation to the original Teutonic converts to Christianity.

Before 300 A.D. a considerable amount of difference of opinion prevailed in regard to the time at which Easter should be celebrated. But after long and somewhat acrimonious controversy, the fathers of the church finally decided that—

1. Easter must be celebrated on a Sunday, and it must be the same Sunday throughout the Christian world.

2. The particular Sunday is that following the fourteenth day of the paschal moon, so that if the fourteenth day falls upon Sunday, the following Sunday is Easter.
3. The paschal moon is that of which the fourteenth day falls on, or next after the day of the vernal equinox.
4. The day of the vernal equinox is fixed invariably on the twenty-first of March.

If we call the fourteenth day of the moon the *full moon*, we may state the foregoing as follows:—

Easter Sunday is the first Sunday after the ecclesiastic full moon which falls on, or next after the 21st of March.

From the foregoing definition we should be able to find the date of Easter for any year in the 20th century, or after.

We have seen that the new moon in March is given by $31-E$, where E is the epact for the year. Adding 13 days to this so as to get the 14th day of the moon, we have—

Ecclesiastic full moon in March is $44-E$. This, of course, counts the days from the beginning of March. The next full moon will occur after 30 days more, that is at $74-E$ days, counting from the same origin. And as this includes the April full moon, we take

$$74-E = \text{day of full moon.}$$

For the use of this expression, we note as follows:—

1. Its value cannot be less than 21, as a full moon before March 21st is not available; so that putting $74-E=21$ gives $E=53$; from which we reject 30 and get $E=23$.

2. If we reject 30, so as to get the March moon, the result must not be greater than 31, as this is the last day in March.

Hence, putting $74-E=31$ gives $E=43$; and rejecting 30 gives $E=13$.

So we have the following Rules:

- i. For values of E from 13 to 23, inclusive, reject 30 and take the month of March.
- ii. For all other values of E , reject 31, and afterwards 30, if necessary, and take the month of April.

The following examples will illustrate:

7. For 1917, $G=18$, $E=6$. Hence the paschal full moon is $74-31-6-30$, or April 7th.

2. For 1960, $G=4$, $E=2$. And paschal full moon is April 11th.

3. For 1953, $G=16$, $E=14$. Taking rule 1, $74-30-14=30$ th of March as day of paschal full moon.

EASTER SUNDAY.

This must be some Sunday later than March 21st.

But, for the twentieth century, the first Sunday in March is given by $4-R$, counting from March 1st. And any subsequent Sunday is expressed in the same manner by $4-R+7m$, where m is an integer. And m must be so taken as to make $4-R+7m$ fall after the day of the Paschal full moon, counted also from March 1st.

Thus for 1916, $R=6$, and for any Sunday after March 1st we have $7m-2$.

Now, for 1916, $G=17$ and $E=25$.

Therefore $74-25=49$, the day of full moon counting from Mar. 1st. And $7m-2$ must exceed 49, which it will do if $m=8$; and Mar. 54 or Apr. 23rd is Easter Sunday.

For 1923, $G=5$, $E=13$. And $74-13-31=$ Mar. 30th, as the day of full moon.

Then $R=7$, and $4-R+7m=7m-3$, which is greater than 30 if $m=5$. Hence March 32, or April 1 is Easter.

The expressions for March Sunday for succeeding centuries are as follows:—

21st C.	22nd C.	23rd C.
$5-R$	$7-R$	$2-R$

The principal movable feasts and holidays depending on Easter are:—

1. A number of Sundays named Septuagesima, Sexagesima,, Quinquagesima and Quadragesima, being respectively 9, 8, 7, and 6 weeks before Easter.

2. Shrove Tuesday, 47 days, and Ash Wednesday 46 days before Easter.

3. Good Friday, the Friday before Easter.

4. Rogation Sunday, Whitsunday and Trinity Sunday, being respectively 5, 7, and 8 weeks after Easter.

5. Ascension day, 40 days after Easter.

A proposition was made some little time ago to make Easter a fixed feast, as far as can be done; that is, to fix it upon a particular Sunday upon a given month.

This would certainly simplify some matters very much. But as such a movement would render useless all the past work

that has been done in regard to the ecclesiastic moon, and would take away that sort of mystery which seems to surround the fixing of the proper date of Easter, besides interfering, to some extent, with long established usages, it is doubtful if the gain to be derived from such a change would compensate for the loss.

A LUNAR CALENDAR.

A proper lunar calendar should have no relation to the motion of the sun, or to the return of the seasons, but should be governed wholly by the moon's phases, and therefore by the moon's movement. Such a calendar, while necessarily counting by whole days, should be so ordered that the first day of each month shall be, as far as is practicable, the day of new moon. And in this connection we do not mean the ecclesiastic moon, but the moon of the heavens.

In this calendar the month begins, and waxes, and wanes with the moon, and its length is, as nearly as it can be made to be, the number of whole days in a mean lunation.

Now a mean lunation occupies 29.53059 days very accurately. And as this is nearly $29\frac{1}{2}$ days, it suggests at first a year of 12 months in which the months have alternately 30 and 29 days each.

This gives a year of 354 days; and this fundamental lunar year must depend upon intercalations for the correction of its errors.

But 12 mean lunations contain 354.3671 days, so that the lunar year, of 354 days, falls short by 0.3671 days each year.

Now, as we must add only whole days, and as it is not convenient to add on a day except at the end of the year, we must endeavor to find in how many years the fraction 0.3671 will, by being repeated yearly, amount to a whole number of days.

By the principle of continued fractions, we readily discover that this excess amounts to 11.0124 days in 30 years, or to 29.0009 days in 79 years.

The error of 0.0124 days in 30 years amounts to 1 day in about 2400 years; and the error of 0.0009 days in 79 years amounts to 1 day in about 88,000 years.

Then, to add 29 days in 79 years would render the calendar so accurate that it would not get permanently out by more

than 1 day in 88,000 years. While to add 11 days in 30 years would keep it correct to within 1 day in 2400 years.

No question could arise as to which of these cycles, 79 years or 30 years, should be adopted, were it not for the fact that the 30 year cycle has already been chosen in what is usually called the *Moslem* or *Mohammedan* calendar, which is in use in all Mohammedan countries, and which is strictly a lunar calendar.

We must, then, distribute the eleven additional days required amongst the 30 years of the cycle, so as to introduce as little irregularity as possible.

In the Moslem calendar one additional day is given to each of the 2nd, 5th, 7th, 10th, 13th, 16th, 18th, 21st, 24th, 26th, and 29th year of the cycle, thus adding 11 days in the 30 years.

The Moslem calendar is supposed to have begun on July 16th, 622 A.D., the day after the flight of Mohammed from Mecca to Medina. But whenever it may have begun, it should have had its first day, and the first day of every month coincident, as far as possible, with the day of a new moon; for, irrespective of the rise and fall of states or empires or religious systems, the moon goes on unchallenged in her course.

The Moslem calendar for a year is given herewith:

Month.	Dys.	Month.	Dys.
1. Mulharran	30	7. Rajab	30
2. Saphar	29	8. Shaaban	29
3. Rabia I	30	9. Ramedan	30
4. Rabia II	29	10. Shawall	29
5. Jomada I	30	11. Dul Q'ada	30
6. Jomada II	29	12. Dul Q'eggia. .29 d. in common and 30 d. in intercalary yrs.	

This calendar, which is wonderfully accurate as a lunar calendar, does not, of course, keep to the seasons, but runs through their whole course in about $32\frac{1}{2}$ years. In short, 33 Moslem years differ in length from 32 tropical years by only 9 hrs. 36 m.

A LUNI-SOLAR CALENDAR.

This is an attempt to make the difficult adjustment of a lunar calendar to the seasons, an adjustment which, while never departing very far from the tropical year, agrees with

it to any close degree of approximation only after a cycle of years.

The excess of a tropical year over a lunar one is 10.8758 days; so that if we add this number of days to a lunar year, we lengthen it out to be equal to a tropical year.

But such an addition would, at once, destroy the efficiency of the lunar calendar. And the only addition that can be made, without doing so, is that of a whole lunar month, consisting of 30 or 29 days, or, where many such additions are to be made, of 30 and 29 days alternately.

We must enquire then how many years must pass that the excess of 10.8758 days per year may amount to a full lunar month of 29.5306 days. By the method of continued fractions, again, we find that the addition of 7 months in 19 years gives a close approximation to what is required.

The residual error is 7×29.5306 diminished by 19×10.8758 , which is 0.074 days in 19 years, or 1 day in 256 years.

The following table gives the number of days in each of the years in the 30 year cycle of the lunar or Moslem calendar, the additional months required to change it into a luni-solar calendar, and the consequent number of days in the years of this latter calendar.

Year	Lunar Calendar	Added Mo.	Luni-solar Calendar	Year	Calendar Lunar	Mo. Added	Calendar Luni-solar
1	354	....	...354	16	355	....	...355
2	355	....	...355	17	354	....29....	...383
3	354	....30....	...384	18	355	....	...355
4	354	....	...354	19	354	....30....	...384
5	355	....	...355	20	354	....	...354
6	354	....29....	...383	21	355	....	...355
7	355	....	...355	22	354	....29....	...383
8	354	....30....	...384	23	354	....	...354
9	354	....	...354	24	355	....	...355
10	355	....	...355	25	354	....30....	...384
11	354	....29....	...383	26	355	....	...355
12	354	....	...354	27	354	....29....	...383
13	355	....	...355	28	354	....	...354
14	354	....30....	...384	29	355	....	...355
15	354	....	...354	30	354	....30....	...384

The luni-solar calendar is practically the *Hebrew* or *Jewish* calendar, and the additional months are added to the

3rd, 6th, 8th, 11th, 14th, 17th, and 19th years in their cycle of 19 years, according to Hebrew usage.

The Jewish year thus consists of either 12 or 13 months, the 12 months being the same as those of the lunar calendar, and the 13th, being an intercalated month, of which 7 are added on in the cycle of 19 years, in order to bring the lunar calendar to be approximately a solar one also.

But the Hebrews appear to have been more concerned with their fasts and feasts than they were with the uniformity of their calendar. And they did not hesitate to add a day to a month or to a year, or to take one away from it, if the exigencies of their religious ceremonies seemed to require it. The consequence being that not only the Jewish years but even the cycles may vary in length to the extent of a day or so, while keeping the average correct for a large number of years.

The Hebrew calendar for a single year, then, appears as follows:—

Month	Common Year	Embolismic Year	Month	Common Year	Embolismic Year
Tisri	30	.... 30	Veadar . . . . .	..	.... 29
Hesvan	29	.... 29	Nisan	30	.... 30
Kislev	30	.... 30	Yiar	29	.... 29
Tebet	29	.... 29	Sivan	30	.... 30
Sebat	30	.... 30	Tamuz	29	.... 29
Adar	29	.... 30	Ab	30	.... 30
			Ellul	29	.... 29

The month *Veadar* is the added month which appears only 7 times in the cycle of 19 years.

The Hebrew calendar begins with the Creation, which is supposed to have taken place 3760 years and 3 months before the beginning of the Christian era. And the first of Tisri will be on 28th Sept., 1916, 17th Sept., 1917, 7th Sept., 1918, 25th Sept., 1919, etc., according to the following table taken from *Woolhouse's measures, weights and moneys of all nations*:—

Jewish year	Numb. of dys.	1st of Tisri	Jewish year	Numb. of dys.	1st of Tisri
5673...	385	...Sept. 12th, 1912	5690...	353	...Oct. 5th, 1929
74...	354	...Oct. 2nd, 1913	91...	354	...Sept. 23rd, 1930
75...	353	...Sept. 21st, 1914	92...	385	...Sept. 12th, 1931
76...	385	...Sept. 9th, 1915	93...	355	...Oct. 1st, 1932
77...	354	...Sept. 28th, 1916	94...	354	...Sept. 21st, 1933
78...	355	...Sept. 17th, 1917	95...	383	...Sept. 10th, 1934

79... 383 ...Sept. 7th, 1918	96... 355 ...Sept. 28th, 1935
5680... 354 ...Sept. 25th, 1919	97... 354 ...Sept. 17th, 1936
81... 385 ...Sept. 13th, 1920	98... 385 ...Sept. 6th, 1937
82... 355 ...Oct. 3rd, 1921	99... 353 ...Sept. 26th, 1938
83... 353 ...Sept. 23rd, 1922	5700... 385 ...Sept. 14th, 1939
84... 384 ...Sept. 11th, 1923	01... 354 ...Oct. 3rd, 1940
85... 355 ...Sept. 29th, 1924	02... 355 ...Sept. 22nd, 1941
86... 355 ...Sept. 19th, 1925	03... 383 ...Sept. 12th, 1942
87... 383 ...Sept. 9th, 1926	04... 354 ...Sept. 30th, 1943
88... 354 ...Sept. 27th, 1927	05... 355 ...Sept. 18th, 1944
89... 385 ...Sept. 15th, 1928	06... 383 ...Sept. 8th, 1945

It will be noticed that the number of days in the years are not quite the same as those given in the luni-solar calendar. This is for reasons already stated.

Let us now examine into the degree of accuracy of these calendars. For this purpose we choose the long period of 570 years, which includes 19 cycles of the Moslem calendar, or 30 cycles of the Hebrew calendar.

Now 570 lunar years contains 570×354 days + 11 days for every 30 years in the 570, or 11×19 days. This makes 201,989 days.

And 570×12 lunations contain 201,989.236 days.

And the error of 0.236 days will amount to 1 day in $570 \div 0.236 = 2417$ lunar years.

So that the correction for the lunar calendar amounts to adding on 1 day in 2400 years.

Again, the luni-solar calendar adds to the lunar one 7 months of $29\frac{1}{2}$ days in every cycle of 19 years; or $7 \times 29\frac{1}{2} \times 30 = 6195$ days in 570 lunar years.

Hence 570 luni-solar years contain 208,184 days. And 570 tropical years contain 208,188.077 days, and the luni-solar calendar falls behind by 4.077 days in 570 years.

But we can correct this error only by adding on a full month of 29 or 30 days. And from this we readily find that we must add an additional month of 29 or 30 days once in every 4275 years.

With these corrections the accuracy of these two calendars, the equivalents of the Moslem and the Hebrew calendars, is really remarkable.

THE CALENDAR OF WEEKS.

The civil year contains 52 weeks and 1 or 2 days according as it is a common year or a leap year. And 52 is 4 times 13. Hence it has been proposed to make the month consist of 28 days or 4 weeks, and to have 13 such months in the year, the remaining 1 or 2 days at the end of the year to be dealt with as holidays.

This would be a very simple calendar, in fact about the simplest that could be formed under present conditions, and it would possess several advantages, such as: 1. All the months would be of the same length, so that there would be no probability of any one's forgetting the exact number of days in a particular month, as there is now. And 2. The weeks would be faithfully repeated in every month, so that if the year came in on Sunday the 1st of every month throughout the year would be Sunday; and similarly in regard to any other day of the week. And thus no literary or other machinery would be required to correlate the days of the week and the days of the various months, as is the case now. For this correlation would be the same for every month in the year.

Also, as we no longer worship the moon, while in every Christian country great attention and importance is given to the week, there is no logical reason why the year should not consist of 13 months instead of 12, and especially as it would simplify matters connected with the week, and do away with the confusion which exists in the present calendar.

WHEN DOES THE YEAR BEGIN?

If we ask the question as to when the year does begin we have a variety of answers.

We may say that the Christian civic year begins invariably upon the first of January, but we must remember that the first of January is not a fixed point of time in the astronomic year. If it were there would be no need of leap years.

And the only practicable way of indicating the beginnings of the different kinds of year is to refer them to some date in a year which we have adopted and which is in common use. For this purpose we naturally use the Gregorian civil year.

In this sense the Moslem year may begin at any time in the year, as this beginning runs the round of the civil year in about $32\frac{1}{2}$ years.

As a specific case, the Moslem year 1335 begins on Saturday, October 28th, 1916; and this is the first of Mulharran 1335.

By dividing the length of a true lunar year by that of a true tropical year, we find that a lunar year is equal to 0.970224 tropical years. And so to find the equivalent of any number of lunar years in terms of tropical years we multiply the number of lunar years by 0.970224.

And by carefully counting backward it is found that the Moslem year began in the year 621.5774 of the Christian era, counting according to the Gregorian calendar.

Hence the following rule for finding the beginning of any year of the Hegira in terms of the Gregorian calendar.

Rule: Multiply 0.970224 by the year of the Hegira, and add 621.5774. The sum is the Gregorian year and fraction of a year. For the day of the year, multiply the fraction by 365.

Example: To find the date of the beginning of the year 1356 of the Hegira.

$$\text{Here } 0.97022 \times 1356 + 621.577 = 1937.2;$$

$$\text{And } 0.2 \times 365 = 73.0 = \text{Mar. 14th,}$$

And the date is Mar. 14th, 1937.

THE HEBREW calendar is much more confused than the Moslem one on account of the long years of 13 months occurring at certain irregular intervals. But on account of the 19 year cycle of the golden number, as also of the Hebrew calendar, the first of the month Tisri, which is the beginning of the Hebrew year, can be found approximately by subtracting the Gregorian epact of the year from 24, increased by 30 if necessary. The result, if less than 4, is a date in October, and if greater than 6, is a date in September.

Thus, for 1916 the epact is 26. And $24 + 30 - 26$ is September 28th. That is the first of Tisri and the beginning of the Hebrew year 5677 is September 28th, 1916.

FRENCH REVOLUTIONARY CALENDAR.

At the close of the French revolution the parties in power appeared to have had their heads turned by success. They set about to construct a new calendar on 'philosophical principles.' A convention in 1793 decreed that the common era should be abolished in all civil affairs and that the new era of human

liberty should date from the 22nd of September, 1792, from the day of the true autumnal equinox, when the sun entered *Libra*, at 9^h 18^m 30^s at the meridian of Paris; that each year should begin at midnight of the day on which the autumnal equinox falls; and that the first year of the French republic should begin at midnight of September 22nd, 1792, and terminate at the midnight between the 21st and 22nd of September, 1793.

The year was divided into 12 months of 30 days each, and the 5 days in excess were to be looked upon as holidays, and were called 'sans-culottides' (tatterdemalions). The years were grouped into *Franciads* of four years each, but no very definite regulation was made for leap year, except that a day should be added *selon que la position de l'équinoxe le comporte*, (according as the position of the equinox required). Each month was divided into 3 weeks or periods of 10 days each, and the names of the months were intended to be appropriate to the seasons which they represented.

Thus the month *Vendemiaire* begins about Sept. 23rd and is, as the name indicates, the season of the vintage. The second month *Brumaire*, beginning Oct. 23rd, is the month of mists or fogs; *Frimaire* the month of hoar frost; and so on, the other months being:

Nivôse	Germinal	Messidor
Pluviôse	Florial	Thermidor
Ventôse	Prairial	Fructidor

In regard to this calendar it may be pointed out that it contains several absurdities which bar it from general use.

First, except for a limited district, as the Republic of France, the beginning of the year is absurd. For the arrival of the sun at an equinox, like the new moon, is an absolute event, independent of locality, and is not likely to happen on the same day all over the world.

Second, the names of the months, although beautiful and suggestive to people living in a genial northern climate, are a contradiction to dwellers in the southern hemisphere, and in this respect the Roman names have a decided advantage.

Third, the dropping of the week of 7 days and instituting one of 10 days in its stead was sure to be opposed by the whole of the Christian world, and the opposition thus set up had no

kind of compensation in the 10 day period, for as we have already said a 7 day week is much better than a 10 day one. As a consequence of these things and possibly of some others, this calendar which was born with great eclat in 1793 breathed its last and passed into oblivion in 1805.

WHEN SHOULD THE YEAR BEGIN?

We have seen that the Jewish year begins, as near as it reasonably can, at the autumnal equinox, when its relation to the moon's phases are also to be considered. Also that the now defunct French revolutionary year was intended to begin on the day of the autumnal equinox. The Moslem year begins at all seasons, and the Gregorian year begins, at present, upon the first of January.

Consider, for a moment, the beginning of the day. In most, if not all, European countries it is considered as beginning at midnight. Astronomers, until the establishment of standard time, made it to begin at noon. Some people look upon it as beginning at sunrise; and some, on the other hand, begin the day at sunset.

In all these cases the day begins at some prominent and distinctive point in the 24 hours. And even the sidereal day is made to begin at the particular moment when the first point of Aries comes to the meridian.

What would we think of the proposal to begin the day at 8 o'clock in the morning, or at 2 o'clock in the afternoon. We would certainly look upon it as an arbitrary and uncalled-for proceeding. And yet that is quite upon a par with that which has been done with the civil year.

There are four prominent points in the earth's orbit—the two equinoxes and the two solstices, and of these the equinoxes are, if anything, more prominent than the solstices.

The Romans began their year near the vernal equinox, and in Great Britain the year formerly began on the 25th of March, which is reasonably near to the vernal equinox.

But in 1752, at the same time with the reformation of the calendar, an Act of Parliament was passed making the civil and legal year to begin on the first of January.

This change was purely arbitrary and no logical or potent reason, as far as we know, has ever been given for it.

The first of January does not mark any important point in the sun's annual journey any more than does the first of February or any other day that might have been arbitrarily taken.

There is nothing unique in the first of January—not even the snow and ice and stormy weather that usually prevail in northern climates at this season. In fact, the first of January has nothing to distinguish it except the favor shown it by these old-time legislators.

A far wiser and better change, in our opinion, would have been to make the day which is now called the 21st of March to be the first of March and the first day of the year.

From such a change several advantages would accrue.

First, the seasons would each have begun with a month and ended with a month, and would have thus been coterminous with a three months period—a feature the most to be admired in the French revolutionary calendar.

Second, the intercalary day in February would have come in at the end of the year, as it should do, instead of coming in, as it does now, at the close of the second month to interfere with the order and regularity of the calendar.

And finally, as the great majority of people live north of the equator and always will do so, to these, the year, beginning with the opening spring and the tender plant, and gradually growing mature in the genial life-giving rays of the summer sun, then passing on to the golden fields and the fruition of autumn, and finally putting on for its closing season the hoary garments of winter, is, if only a sentiment, a fitting epitome of life.

This seems to have been the controlling idea of our great Poet of the Seasons, who opens his grand theme with—

Come gentle Spring! ethereal mildness! come;
And from the bosom of yon dropping cloud,
While music wakes around, veil'd in a shower
Of shadowing roses, on our plains descend.

And closes with—

'Tis done! dread Winter spreads his latest glooms
And reigns tremendous o'er the conquered year,
How dead the vegetable kingdom lies!
How dumb the tuneful! Horror wide extends

His desolate domain. Behold, fond Man!
See here thy pictured life; pass some few years,
Thy flowering Spring, thy Summer's ardent strength,
The sober Autumn fading into age,
And pale concluding Winter comes at last,
And shuts the scene.

N. F. DUPUIS.

IN TIMES LIKE THESE.

In times like these, our hearts are lifted up
Although we yet may drink the bitter cup
Of sorrow and of suffering to the lees;
But yet it matters not, in times like these.

In time like these we learn to sacrifice
Our kindred, homes, and selves, and all we prize.
We seem to be but dead leaves in a breeze
Blown to and fro by gusts, in times like these.

In times like these we find ourselves again
And sympathize with sufferings and with pain.
Before the living God we bow our knees
And learn to trust again, in times like these.

Kingston, March 12th, 1916.

Walter Sage.

IN THE GRAVEYARD AT FORT MONCKTON, N.B.

(Graves marked 1755 and 1756).

This lonely garden more than half-way round
Hath a sea-wall, and then a Time-filled moat—
The Fort's sole remnant now—doth else denote
How 'tis marked off from all the common ground.
And here and there in knee-deep grass are found
Prone slabs that speak of prowess in the past,
Deaf to the message of each mould'ring mound.

I sit, and varied voices make me start:
Glad lovers listening to the lapping tide;
The team-song of the swain on yonder lea;
Children at play who are their parents' pride;
And that sweet bell—echoes of Liberty
From out these graves in this old garden's heart.

Alexander Louis Fraser.

CARLYLE AND GERMAN THOUGHT.

IN discussing the question of Carlyle's indebtedness to German thought, one must not allow oneself to be biased by the infamy which in these days has fastened upon the German name. The literature of Germany's Augustan age—roughly the latter half of the eighteenth and the early decades of the nineteenth century—is unquestionably world-literature, a heritage for the race. Goethe, Kant, Fichte, Hegel—to mention only the greatest—are fixed stars in the firmament of thought, and that an English writer learned much from them cannot reasonably be brought against him as a reproach. Any lingering reluctance to acknowledge the debt ought to be dissipated by the reflection that between the outlook of the great Idealists and that of the modern Teuton there lies a gulf that is wide and deep. Whatever we think of classical Idealism as a solution of the problems of existence, we must recognize that it is in its spirit human and cosmopolitan, and affords little support to the racial and national particularism with its concomitants of brutality and immoralism, that have become so frightful a portent in the thought and life of modern Germany.

That Carlyle was throughout his life dominated by pro-German sympathies must at the outset be frankly admitted. With Lord Haldane he would have confessed that Germany was his spiritual home. While yet in his early twenties he had acquired a sovereign mastery of the difficult and, to many, distasteful German tongue and an unrivalled knowledge of its literature. As we shall see presently, he found in that literature what met his own spiritual need at the critical juncture of his career, when the collapse of his early faith threatened to leave him a prey to the materialistic conception of things that then dominated English thought. Can we wonder if he came to the conclusion that the philosophy in which he himself had found salvation was precisely what the need of England demanded? For some seven or eight years he made it his chief mission to interpret and mediate that philosophy to the British public. Translations of German works, essays on

German writers, articles on German thought proceeded in quick succession from his pen. In vain magazine editors protested that the English public was sick of "German mysticism," and exhorted him to turn his energies into other and more acceptable channels. With a noble conscientiousness Carlyle insisted on supplying not what the English public desired, but what in his judgment it required.

While freely admitting the importance of the service which Carlyle thus rendered to his countrymen, one may be permitted to regret that during this period he did so little to interpret the writers of his own land. His splendid essay on Burns, his far less satisfactory essay on Scott, his essay on Johnston—that is all for which we have to thank him. Towards the poetry of Wordsworth, though it contained, and perhaps in a higher form, what he admired in Goethe, he was unsympathetic. In after years, Carlyle himself came to see that his early devotion to German literature had been somewhat too exclusive.

The period of pupilage and mediating work was not, however, unduly prolonged. In *Sartor Resartus* Carlyle stands on his own feet. If this book owes much to Goethe and Jean Paul Richter, it is in every fibre of it the creation of the writer's own spirit. Carlyle had now unmistakably a gospel of his own to preach; and from this time forward, German ideas were hardly more to him than a medium for the expression of that gospel.

In order to understand what Carlyle found in German Idealism and why he should have welcomed it as a heaven-sent message, it is necessary to consider for a moment the intellectual atmosphere of the England of his early days and the inward struggle through which he himself had to pass.

To a very large extent and particularly among the more highly educated classes, England had lost its faith in any higher reality than that which the senses reveal. The prevailing type of thought was naturalistic, one might almost say materialistic. The key to existence was found in the idea of mechanism. In the great universe men saw nothing more than a cunning piece of clockwork. Its fundamental forces and laws were neither rational nor moral, but mechanical.

Associationism reigned in psychology. The soul was explained as a bundle of sensations, with the laws of association as the binding string. It was a piece of mechanism. The application of the same idea to human conduct had as its result a Utilitarian ethic. Morality was loosed from its connection with religion, and an attempt was made to explain it by reducing it to its ultimate elements, these elements being found in our feelings of pleasure and pain. By a necessity of his nature man seeks the first and shuns the second, and his highest good consists in securing the largest possible balance of pleasure. True, man is capable of altruistic action, but altruism when rightly understood is only a more subtle and enlightened form of egoism. Ultimately the pursuit of virtue means the pursuit of our own greatest happiness. So taught Jeremy Bentham and, with certain modifications, John Stuart Mill. Morality appears as a mechanic of pleasure and pain.

In the new science of Political Economy the interpretation of human life in terms of mechanism was carried a stage further. Adam Smith, the founder of the science, did not himself regard man as moved exclusively by the forces of pleasure and pain; on the contrary, he held him to be capable of genuinely disinterested action; but in considering him from the economic standpoint, he believed that moral and benevolent motives could without serious error be left out of account, and that man could be treated as pursuing consistently the single end of doing the best for himself. And it was the corner-stone of his system that such egoistic procedure in matters of trade, each man buying in the cheapest and selling in the dearest market, will result in a maximum of goods and riches for the community. Society was thus presented in the light of an economic machine with egoism as its driving force; and an effort was made to formulate the laws that determine its efficient working. And by Adam Smith's successors, the limitation of the mechanistic view involved in his recognition of altruistic conduct was forgotten or ignored. Egoism was treated as the necessary spring of human action. The consequence was that economic laws—the law of supply and demand, for example—lost their relative character and appeared as universally valid laws of nature, against which it is as futile to rebel as against the law of gravitation.

Finally we have to note the fact that history also was brought within the domain of mechanism. Its bottom meaning was found to be this, the gradual amelioration of the conditions of life for the masses through the exploding of super-step transformed the economic situation. The significance of great personalities as factors in the development of civilization was discounted. Prophets, kings and lawgivers could in the best case only hasten what the facts themselves would sooner or later have brought about.

Such was the philosophy that dominated the generation in which Carlyle grew to manhood. How miserably poor and uninspiring it is one does not need to say. At the heart of things nothing but dead mechanism, man himself a machine moved by the springs of pleasure and pain, society a concourse of egoistic atoms with no higher bond than the cash nexus, history the story of man's more or less successful efforts to procure for himself a more comfortable existence, the eternal stars—duty, freedom, God—as good as extinguished.

If we are to understand Carlyle it is necessary to keep this philosophy steadily in view. His wrestle with it formed the turning point of his spiritual career, and it was in search of something better that he plunged into the far from pellucid sea of German metaphysic. His most characteristic doctrines were all shaped in opposition to it.

We have spoken of a spiritual crisis in Carlyle's life. Brought up on Scotland's traditional Calvinistic and Puritan creed, the future sage, up to the close of his university days, does not seem to have doubted at least its substantial truth. In a vague way he looked forward to a place in the ministry of the Scottish Kirk. But it was no long time before he awoke to the fact that his early faith had gone from him beyond recall. The one alternative that presented itself was the naturalistic philosophy which we have already in outline described. This philosophy, so far from attracting, repelled him. But what if it should turn out to be true? The feeling that there was no escape from it for a time weighed on him like a nightmare. "To me," he writes in *Sartor Resartus*, "the universe was all void of life, of purpose, of volition, even of hostility; it was one huge, dead, immeasurable steam engine, rolling on in its dead indifference, to grind me limb from limb. O the

vast, gloomy, solitary Golgatha and mill of death! Why was the living banished hither, companionless, conscious?" *Sartor Resartus* is the story of his escape from that night-mare of a world without God and his new birth into a faith with which he could confront life and death. Even before he was in a position to oppose to the mechanical conception of things a higher spiritual conception, he had by the mere inward force of his soul risen above it and trampled on it. "Full of gloomy humour," he tells us, "and perhaps the miserablest man in the whole Capital or suburbs, was I one sultry dog-day, after much perambulation, toiling along the dirty little Leith walk among rubbish enough, in a close atmosphere, and over pavements hot as Nebuchadnezzar's; whereby doubtless my spirits were little cheered, when all at once there arose a thought in me and I asked myself: What art thou afraid of? Wherefore like a coward dost thou for ever pip and whimper and go cowering and trembling? Despicable biped! what is the sum total of the worst that lies before thee? Death? Well death, and say the pangs of Tophet, too, and all that the devil and man may, will, or can do against thee! Hast thou not a heart? Canst thou not suffer whatsoever it be: and as a child of freedom, though outcast, trample Tophet itself under thy feet while it consumes thee? Let it come, then: I will meet it and defy it. And as I so thought there rushed like a stream of fire over my whole soul: and I shook base fear away from me for ever." That experience is imaginatively described, but it is easy to determine its character. What we have is the fundamental act of all religious faith, the affirmation of the sanctities of the inner life as against the forces and laws of the material universe—the affirmation of their right and also of their might.

Carlyle could not, however, rest with this; he must press forward toward some connected world-view in which his hardly-won faith should find embodiment. A friend suggested to him that in German literature he would find what he required, and to German literature he had recourse.

Already the German thinkers of the late eighteenth and early nineteenth centuries had grappled with the spectre of Materialism which had appalled the soul of Carlyle, and in opposition to it had developed a philosophy in which not Na-

ture with its mechanical order, but Spirit with its freedom is exhibited as the fundamental reality. Whatever one may think of the Idealistic philosophy as a solution of the problem of existence, it was a real attempt to vindicate the intuitions of our religious faith and to establish the great worths—beauty, truth, goodness—that give to our human life its meaning as belonging to the ultimate nature of things. Of this spiritual world-view Goethe was the supreme literary exponent. In some sense he may be regarded as its father. For Goethe the world is the “living garment of Deity.” Its laws and processes body forth the harmonious and infinitely rich life of the universal soul. The feeling for that universal life which touches us in every blade of grass and in the mighty movements of history is religion. Take this quotation from Faust. “He who embraces and upholds all things, does He not grip and sustain thee, me, Himself? Hangs not the heavens over us, lies not the earth stable beneath our feet? Do not the eternal stars with friendly look mount the sky? Do not I behold thee eye to eye, and does not everything surge in on head and heart, and move in eternal mystery, visible, invisible, about thee? With all that fill thy soul to its utmost capacity; and when thou art wholly blest in the feeling of it, call it what thou wilt,—happiness! heart! love! God! I have no name for it; feeling is everything; name is but sound and smoke wrapping in a mist the glow of heaven.”

What Goethe possessed as a poetic intuition, the philosophers translated into a rationally grounded and articulated system. Kant was not himself an Idealist, but by his demonstration of the subjective and phenomenal character of the world of space and time, and of the dependence of that world on the creative activity of thought, he prepared the way for Idealism. The step from which Kant shrank, to establish thought or spirit as the one ultimate reality, was taken by Fichte. Fichte, and following him Schelling and Hegel, elaborated in their several fashion systems which undertake to explain on the basis of this idea of the sole reality of spirit the whole furniture of heaven and earth.

Now it was this cardinal idea of German Idealism, common to the poets and the philosophers, which Carlyle in the crisis of his career seized on as that for which he had been

looking. It presented itself to him as a refuge from materialism and as a substitute for the creed of his childhood, which had become for him, at least in its outward form, incredible. In *Sartor Resartus* he expounds it for the British public under the half-humourous title of the clothes philosophy. Let me give one two extracts from this and other writings. "This fair universe," he says, "were it in the meanest province thereof, is in very deed the stardomed city of God; through every star, through every grass blade, and most through every living soul, the glory of a present God still beams." "Matter were it never so despicable, is spirit, the manifestation of spirit; were it never so honourable, can it be more?" "All visible things are emblems; what thou seest is not there on its own account; strictly taken it is not there at all. Matter exists only spiritually and to represent some idea and body it forth. Hence clothes, as despicable as we think them, are so unspeakably significant. Clothes, from the King's mantle downwards, are emblematic not of want only, but of a manifold coming victory over want. On the other hand, all emblematic things are properly clothes, thought-woven or hand-woven." "The universe itself is, as Goethe says, 'a living garment of Deity,' a garment through which He reveals Himself to the eye of poet and prophet, and in a measure to everyone who is prepared to see." "The universe is not dead and demoniacal, a charnel-house with spectres; but Godlike and my Father's."

This idea of the outward and visible as the manifestation of an inward spiritual principle or life, Carlyle, following Novalis, applies not only to the whole of things, but also to the smaller universe of human beliefs and institutions. What is true of the macrocosm is also true of the microcosm. The history of religion, for example, is but a history of the different symbols through which man has bodied forth his faith; every symbol becoming in time outworn and requiring to be replaced by a new and more adequate symbol. Where the symbol survives the spirit that created it religion degenerates into cant.

What Carlyle took from German Idealism was, in this connection, hardly more than the general idea of the outward and visible as the manifestation and symbol of inward and invisible spiritual reality. In the speculative constructions

of the great philosophers, Kant, Fichte and Schelling, he shows not the slightest interest. Hegel he hardly mentions. It is true that in his essay on Novalis he reproduces the Idealistic demonstration of the subjective nature of the so-called secondary qualities of matter and the Kantian doctrine that space and time are but forms of the understanding; but his own faith rests on no such speculative reasonings. Speculative constructions he uniformly regards with suspicion and even with scorn as attempts with our poor human plummet to fathom the unfathomable. When he seeks a rational justification of his spiritual interpretation of things he has recourse, not to metaphysics, but to the current Idealistic distinction between the understanding and the reason. The secret of the universe hid from the logical understanding reveals itself to the imaginative intuition of faith. "Yes, friends," says Teufelsdröckh, "not our logical, mesurative faculty, but our imaginative one, is King over us, priest and prophet to lead us heavenward, or magician and wizard to lead us hellwards." It would be untrue to say that Carlyle owes little to the philosophers. If he could not appropriate their processes, he appropriated the results; and as we shall see he was indebted to Fichte for a good deal more than the general Idealistic standpoint. Nevertheless, it was not the philosophers, but the poet Goethe that was the master influence. "To Goethe," he says in his *Reminiscences*, "I felt myself then and still feel myself under endless obligation in this matter. In his fashion, as I well noted, he travelled the steep, rocky road before me, the first among the moderns."

How far can the spiritual Pantheism which Carlyle took over from the German Idealists be regarded as his real and permanent faith? How far did he find in it a new spiritual home the speech of which rose naturally to his lips? The truth I believe to be this, that it was never really assimilated by him, and that the longer he lived the farther he drifted from it. Even in the *Sartor Resartus* period, the Calvinistic and Puritan conceptions he had learned from his father and mother were far from being submerged, and as time passed they asserted themselves more and more. A brief study of his philosophy of history and of his ethic will perhaps lend some support to this judgment.

How does Carlyle write history? Not as a story-teller like Heroditus, nor as a political philosopher like Thucydides, nor as a politician like Macaulay, nor, we may add, as a metaphysical thinker like Fichte, but in the spirit of a Hebrew prophet. Fichte interprets history from the standpoint of the Idealistic philosophy. History represents the self-development of the Absolute, its unfolding in the ever flowing stream of time. Every nation has its significance as a moment in that evolutionary process, an aspect of the Absolute Idea. Now it is true that in his earlier period, when he was most under German influence, Carlyle touches on this conception of history. But in his French Revolution, his Oliver Cromwell and his Frederick the Great it hardly at all emerges. The idea of evolution, whether in the Fichtean or in any other form, has no real place in the scheme of his thought. What he is everywhere concerned to demonstrate is the operation in history of a moral order, a law of Justice, which sooner or later brings the time server with his deeds to nought, and guarantees a permanency of influence to every true worker and every true work. "The universe is made by law, the great soul of the world is just and not unjust"—that is his constant burden. It is the lack of human justice on earth that prepares cataclysms like the French Revolution. And that justice get itself established on this earth, in ever more perfect fashion, that this earth be turned into something like a Kingdom of God, is the aim of all just men and right institutions. Eternal as the course of the world's history is the endeavour to translate this idea into fact.

It is as a corollary of this belief in the justice of the order under which we live that Carlyle develops his doctrine of the ultimate identity of might and right. Needless to say he has no intention of presenting right as contingent on success. "A man has fought," he says, "with all his might, and in exact proportion to his right he has prevailed. His very death is no victory over him; he dies indeed, but his work lives. The cause thou fightest for, so far as it is true, no further but precisely so far, is sure of victory."

The presence and activity of a law of justice in human history is in great part what Carlyle means by the presence

and activity of God. Founding on this one might jump to the conclusion that by God he means just what Fichte means, not a personal being but an impersonal moral order. Such a conclusion would, however, be unwarranted. More and more as he grew older, Carlyle spoke of God and His working in the language of the Hebrew prophets and Psalmists. If it be objected that in so doing he is making a conscious use of symbols to express the inexpressible, we can cite his words spoken to the students of Edinburgh University. "I believe," he says, "you will find in all histories, that religion has been at the head and fountain of them all, and that no nation that did not contemplate this wonderful universe with an awe-stricken and reverential feeling, that there was a great unknown, omnipotent and all-wise and all-virtuous Being, superintending all men in it and all interests in it—no nation ever came to very much, nor did any man either, who forgot that." Such language is irreconcilable with any dogmatic theory of an impersonal law, such as Fichte held. With respect to Carlyle's general conception of history the truth we believe to be this, that while it may owe something to Fichte's emphasis on the idea of law, it owes far more to English Puritanism. As strongly as Carlyle, the Puritans believed in a present God active in the affairs of the nation. And their God, like his, was a God of law and justice rather than a God of grace. For them too the goal of a nation's life was that God's will should be done in it and God's Kingdom established. Carlyle is the last of the Puritans; but in his hands Puritanism is freed from its narrowness and made to speak a new language. Further, there is introduced into it more than a dash of agnosticism. While never wavering in the belief that the universe is an open secret which every earnest spirit can read, Carlyle has a profound sense of the mystery which on every hand shuts us in. Take the following well-known passage from *Sartor Resartus*: "Thus, like some wild-flaming, wild-thundering train of heaven's artillery, does this mysterious mankind thunder and flame, in long-drawn, quick succeeding grandeur through the unknown deep. Thus like a God-created, fire-breathing spirit-host, we emerge from the inane; haste stormfully across the astonished earth; then plunge again into the inane. But whence?—O heaven, whither? Sense knows not; faith knows

not; only that it is through mystery to mystery, from God and to God."

But if Carlyle's conception of the innermost meaning of history betrays far more the influence of English Puritanism than of German Idealism, it must be added that at not a few points his dependence on Goethe and Fichte is beyond question. From Fichte he derived the idea, though it is also found in Goethe, of an alternation between periods of faith and productiveness and periods of unbelief and criticism. More important still, it was Fichte who provided him with his doctrine of the hero. How prominent a place that doctrine occupies in his philosophy of history every student of his writings knows. "Universal history," Carlyle tells us, "is at bottom the history of the great men who have worked here. They were the leaders of men these great ones: the modellers, patterns, and in a wide sense creators, of whatsoever the general mass of men contrived to do or attain. The soul of the whole world's history, it may justly be considered, were the history of these." The hero appears in the world under various guises, according to the need of the time, as a prophet, like Mahomet; as a priest, like Luther; as a poet, like Dante; or again as a king, like Cromwell. Carlyle develops the doctrine in an extremely antidemocratic way. It is directed against the current view, which found expression in Buckle and Taine, that the factors that make for progress have their seat in the masses, and that great men are not so much creative as typical figures. The doctrine is directed also against political radicalism with its theory of equal rights for all and wisdom in the ballot box. In the wisdom of the masses, Carlyle has no belief whatever. The masses are mostly fools. Every good gift comes not from beneath, but from above, from the God-sent hero. The duty of the masses is to reverence the hero and submit themselves absolutely to his guidance. If they refuse submission, compulsion must be sharply applied. To be forced to go straighter by those who are wiser than themselves—that is their right and also the path to true freedom.

In all these ideas Carlyle is anticipated by Fichte and in part by Goethe. Take the following passage from Fichte's "Doctrine of the State." "Our opponents speak of the natural man and the natural, instinctive will. But this will has abso-

lutely no right to give itself outward expression. It must be suppressed wherever it shows itself; and every man who has the power has the right to carry out this suppression. *Outward* right must be established by force. But the freedom of the *inner* will must be trained and disciplined to recognize the truth. To compel men to a state of right, to put them under the yoke of right by force, is not only the right but the sacred duty of every man who has the knowledge and the power. In case of need, one single man has the right and duty to compel the whole of mankind; for to that which is contrary to right they have, as against him, no right and no freedom. He may *compel* them to right. For right is an idea absolute, definite and of universal validity; an idea which they all ought to have, and which they all will have, as soon as they are raised to his level. This idea he possesses in the name of all, and as the representative of all, in virtue of the grace of God which works in him. The truth of this idea he must take upon his own conscience. He is the master, armed with compulsion and appointed by God." Everything is here, the divinely commissioned master or hero, his inherent right to rule in virtue of his superior endowment, his right to exercise compulsion, and the duty of absolute submission on the part of the common herd. Carlyle's debt is unmistakable.

Turn we now for a moment to the field of Ethics. As already stated Carlyle's ethical teaching has as its background the current Utilitarian or, as he was accustomed to dub it, the pig philosophy, which resolved duty into a calculus of pleasures. Right and wrong, he is ever insisting, cannot be measured in terms of profit and loss. "The one is death eternal to a man," he declares, "the other life eternal." "In all situations out of the pit of Tophet wherein a living man has stood or can stand, there is actually a prize of quite infinite value placed within his reach—namely, a duty for him to do. This highest gospel forms the basis and worth of all other gospels whatsoever."

In proclaiming the sacredness of duty Carlyle doubtless found support in the teaching of Kant and Fichte. But it was not from these writers he derived his gospel; he had imbibed it in his home and it was native to his own soul. And it has to be noted that at least in his later works he rests this gospel

of duty not on the metaphysical idea of Fichte, that a man make himself the instrument of the Absolute, but on the theistic idea that there is a God to whom we are responsible.

What is true of Carlyle's gospel of duty is true also of his gospel of work. It is easy enough to find anticipations of it in Goethe and Fichte; but one has to remember that it was native to the Puritan spirit in which he was steeped. And with advancing years the Puritan strain more and more asserted itself. We see it in the increasing austerity of his outlook on life. While in his literary period, under the influence of Goethe and Schiller, he contends for an all-round culture, aesthetic as well as moral; in the period of his *Histories* this conception of life retires into the background before one which sees in the moral life's one vital centre, and in the man of action the driving force in human history. It is the same Puritan rigorism which leads him to interpret Goethe's doctrine of self-renunciation or self-limitation as meaning that certain sides of our nature must be sacrificed to the moral.

But while Carlyle's ethic is at bottom Puritan rather than Idealistic, it would be wrong to say that it owes nothing to the great German thinkers. At not a few points the debt is unmistakable. In his determination of human rights and duties Carlyle in the main attaches himself to Fichte. From Fichte he derives the doctrine that man has no right to withdraw himself from labour and live in idleness, that white or black he must be compelled to work if he does not do so of his own volition. Fichtean is the doctrine that work and a living wage for work are man's inalienable right, properly speaking the only right he possesses. And Fichtean, too, is his doctrine of property, that a man has no natural right to any possession, that his title to it depends on the use he makes of it, and lapses on his failure to turn it to the best account, "The tools to them who can handle them." On this principle Carlyle justifies Frederick the Great in his seizure of Silesia and his partition of Poland. By its failure to develop Silesia, Austria had forfeited its right to the province, and on the other hand the prosperity of the province under Prussian rule was a sufficient demonstration that the right had passed to Prussia. Manifestly a principle of far-reaching consequences.

Among the most characteristic of Carlyle's ethical conceptions is that of Veracity; and since this conception in one aspect of it bears a decided resemblance to what the modern German calls "real Politick," one inquires after its paternity with peculiar interest. Who, according to Carlyle, is the veracious man? He is the man who sees to the heart of things, discerns the inner truth of things. "He stands by truth, speaks by it and works by it, fronts time with it and eternity with it." "The delusive shows of things, the expediciencies of life and its worldly prizes, cannot dazzle him." All this is excellent; but not infrequently a turn is given to the doctrine which makes us pause. Intellectual clarity and force are treated as identical with moral clarity and force, and veracity claimed for a hero on no better ground than that he knows what he would be at and the best means for its attainment. Frederick the Great, for example, is extolled for his "veracity" when the "timeshows" he thrusts aside are simply the moral scruples of the ordinary man.

Is there anything in Carlyle's German teachers that suggests such a doctrine? One might point to Fichte's conception of Integrity, developed in his popular treatise on "The nature of the scholar." The man of integrity, according to Fichte, is the man who looks upon his own personal existence as a thought of Deity, and upon his vocation as a purpose of Deity. Between this conception and that of Carlyle's veracious man who lives in contact with the inner truth of things there is an obvious resemblance. But what of the more questionable turn which the veracity doctrine receives? Here, perhaps, it is not Fichte but Goethe who is the model. In *Wilhelm Meister* we find the following words: "Man's greatest merit is to bend circumstances to his will and as little as possible to be determined by them. I honour the man who clearly perceives what he would be at, knows the means that will serve his purpose and how to seize and use them. Decision and consistency in pursuing the end proposed (*Entscheidenheit und Folge*) are, in my opinion, the human qualities most deserving of honour."

That Carlyle's debt to German Idealism is real and considerable cannot be seriously questioned, and he himself is not slack in acknowledging the fact. Of Goethe in particular he always speaks with the reverence of a disciple for his master.

From Germany, Carlyle undoubtedly borrowed the majority of his characteristic doctrines. His conception of the world as the living garment of Deity, of alternating periods of faith and criticism, of the hero and his significance in history, of property as belonging of right to the man who can turn it to the best account, of the inalienable title of every man to work and wages and to be compelled to work if moral suasion fail, of veracity as the fundamental human virtue can all be traced back to German sources. It does not follow, however, as writers like Henzel and Baumgarten contend, that his chief title to greatness lies in his work as a missionary of Teutonic ideas. In the first place he is never a mere borrower. Upon everything he takes from others he puts his own unmistakable stamp. He may, as C. E. Vaughan says, have learned from Fichte and Goethe, but in the last resort "he is the man who has seen the vision with his own eyes, who has drawn the water not from the pitchers of other men, but direct from the source." Further, while Carlyle is indebted to German Idealism for most of his conceptions, the same cannot be said of his fundamental outlook on life. At bottom he is not an Idealist in the sense in which Goethe and Fichte are, but a Calvinist and Puritan. The deepest strain in his ethics and religion is a heritage from the best traditions of his own land.

The truth is that it is not as a master of ideas, like Plato, Aristotle, Kant and Goethe, that Carlyle must be judged. In this domain he has no title to be ranked with the immortals. His greatness lies in other directions. He is a supreme literary artist, in his command of the noble English language second only to Shakespeare. Though without the faculty of verse, he possesses in a high degree the poet's sympathy, insight and imagination. In the power of tracking the inner forces of belief and passion, and of making a character live before us in a few graphic strokes he has rarely been surpassed. Finally, he is an authentic prophet, the closest parallel to the great Hebrew prophets that our modern world has seen. Among the European writers of the nineteenth century there are few if any greater names than that of Carlyle.

W. MORGAN.

THE CHRONICLE OF THOMAS SPROTT.

VISITORS to Canterbury, after they have explored the Cathedral, strolled along the crooked streets, inspected the museum at the city gate and have perhaps even journeyed to find St. Martin's Church the first home of English Christianity, are satisfied to take the train back to London thinking they have done a good day's work. One need not question the strenuousness of the outing, for who can see even a portion of Canterbury Cathedral in a day and remember what he has seen? There we see the Black Prince's armour and picture to ourselves once more the great drama of Thomas a Becket. The French Chapel in the Crypt brings home to us the fall of the Huguenots and we look about in vain for the house of Betsy Trotwood and David Copperfield. A few of us perhaps are attracted by the massive gateway of St. Augustine's college and pass within it to roam around the college and even to inspect the ruins behind.

It is those old ruins, only partly excavated, with their crumbling walls, and total sense of desolation, which should form the background for the study of the Chronicle of Thomas Sprott. In the old cloister of that ruined monastery some time in the late thirteenth century Thomas *Sprott* or *Spotte*, a monk of the Benedictine Order, worked at his chronicle. Of his life little is known except that he was a monk celebrated alike for his religion and his excellent learning. Pitseus in his work "De illustribus Angliae Scriptoribus" states that he was an "inhabitant and nursling of the city of Canterbury, and not an ungrateful one either," (*incola et alumnus civitatis Cantuariensis sane non ingratus*). Thomas Hearne, his eighteenth century editor, puts forth a wild theory that Sprott studied at Canterbury Hall in Oxford and passed much of his life there, but there is not much evidence for this. Hearne himself states that if Sprott studied in Oxford he probably lived at a later date than is usually accepted. Leland, Bale, Pitseus and Sir Edward Dering all maintain that Sprott flourished during the

reign of Edward I. The general consensus of opinion is therefore that Sprott lived and wrote about 1270, during the reigns of Henry III and Edward I, and that he was a monk of St. Augustine's Abbey in Canterbury.

That he belonged to Canterbury is evident from the numerous references in the two parts of the Chronicle and especially from the *Fragmenta Sprottiana* which Hearne publishes in his edition at the conclusion of the Chronicle. The *Fragmenta* chiefly deal with the affairs of the Abbey of St. Augustine and record a list of papal bulls and other documents relating to the monastery. A statement of William the Conqueror concerning the liberty of the monastery is even included. From all these references, which would be available chiefly to an inmate of the Abbey, we can conclude that Thomas Sprott belonged to the Abbey of St. Augustine and spent his life there. Of his life in the Abbey we know nothing at all. He was not a second Jocelyn of Brakelond who possessed the gift of writing down the everyday doings of the monastery in which he lived. In fact, he goes to the other extreme, and mentions nothing at all about himself or the ordinary life of his companions. He is possessed of that impersonality which marks mediaeval scholarship and especially mediaeval chroniclers. The names of Abelard, Duns Scotus, Peter Lombard, Roger Bacon and of Thomas Aquinas, as well as scores of others, stand out in mediaeval history, but we hear nothing of nameless men who wrote the chronicles or even had their part in the completion and perfection of the Trivium and Quadrivium. In fact, were it not for his name at the head of the MS. which Hearne discovered in the Library of Sir Edward Dering, and the few references in Leland Bale, Pitseus and others, which Hearne has so laboriously collected, we would hardly know whose work it was that we were reading.

In a sense there would be but little loss. Except to the initiated all mediaeval chronicles are the same mediaeval chronicle, dry as dust records to be eschewed entirely in favour of some more "up-to-date study." Even the learned scholar picks out the "two grains of wheat from the bushel of chaff." How deadly the chaff can be may be judged by the following entries picked at random from the first part of Sprott's Chronicle and done into English:

- "Year 676. Donus made Pope and in the following year Agatho.
 Year 681. Leo II is made Pope and he ordered that the "Pax" be given after "Agnus Dei."
 Year 683. Benedict II is made Pope and sits for ten months.
 In the following year John V is made Pope and Leodegardus suffered."

Yet even this very extract shows the bent of Thomas Sprott. He records Popes and Archbishops but his entries are short. In his Chronicle, Part I, he covers the whole history of mankind from the Creation until 185 A.D. The entries from 1274 to 1385 are by Sprott's continuator, probably William Thorn,¹ but the same concise style is followed throughout. This brevity has of course obvious disadvantages since the Chronicle becomes in places merely a list of patriarchs, kings, popes and archbishops, but it allows Thomas Sprott to cover in sixty double column pages a period which is covered in two hundred and forty pages in the Rolls' Series by Capgrave's Chronicle of England. The other great English Chroniclers are far longer. Not to mention the enormous length of Matthew Paris and Giraldus Cambrensis, Radulph de Coggeshall takes about eighty MSS. pages to cover the period from the Norman Conquest to the end of the Third Crusade. Sprott's Chronicle is therefore very brief.

But brevity as a virtue must come second to accuracy. Is Spott's chronicle both brief and accurate? Unfortunately it is not always accurate, at least its dates do not always agree with our accepted Chronology. For example, Charlemagne's death is recorded as happening in 816 instead of 814. But after all this may be only a clerical error since XIV and XVI are easily interchanged and Sprott always writes according to a curious Roman system of numbering, possibly his own, e.g. 816 reads, VIIIC; XVI.² There is also a curious error in Part II over the date of the Norman Conquest. There we are told that William the Conqueror was crowned on Christmas

¹So Pitseus—Harum historiarum postea Guilhelmus Thornus ejusdem ordinis monasterii religiosus collegit et eis aliquorum annorum additiones fecit.

²According to this system eighty becomes four i's with two x's over it and numbers from 80 to 100 are counted along the French system, e.g. 95 is 80+15 or xx/iiii xv).

Day, 1077. There are other dates which do not agree with the usually accepted chronology. Some of them, as for example the dates of the O. T. Patriarchs, may be disregarded, but it is noteworthy that the dates for both the death of Charlemagne and the Norman Conquest are given wrong.

About affairs around Canterbury, Sprott is probably accurate enough. He tells of an arrangement made in 1258 between the Archbishop and the Prior of St. Augustine whereby the Prior and Chapter secured the return of writs and were to have all amercements and powers of justice which the Archbishop enjoyed through his Seneschal. But when not dealing with Abbey affairs he is credulous and accepts stories of the Seven Sleepers and records Sylvester II as a "necromancer who at last repented and dying cut off his members and cast them to the Devil." He also accepts current stories about great events and records that at the capture of Jerusalem by the Christians, "In Solomon's Porch so many Pagans were killed that they rode in blood to the knees of the horses." Now the anonymous author of the *Gesta Francorum* who was an eyewitness of the slaughter in Jerusalem records that the Crusaders "waded up to their ankles in blood." But Sprott, writing about two centuries after the event, has increased the effects of the slaughter. He is probably following the popular tradition which was possibly based on the less accurate accounts of Raymond of Agiles and Fulcher of Chartres.

None the less, in spite of his credulity and his occasional inaccuracies about dates, the Chronicle of Thomas Sprott must have served as an interesting compendium of universal history for the monks of Canterbury. It recorded the Archbishops and the Popes and it gave some few references to more general history. In the second part there were more lengthy and continuous accounts of the chief events in English history. To us Sprott's Chronicle is interesting not only as a sample of mediaeval industry, but even more as a mirror, however slight and unimportant, of the mind of the mediaeval scholar. We find portrayed there the mediaeval, uncritical desire for knowledge. The monk in his monastery was always in touch with the past as with the infinite future. He was not only a "religious" but religion was his life. He was brought

up in the tradition of the Church, into him was instilled the discipline of his order and he lived his day according to the canonical hours. To him "prime," "terce," "sext" and "none" were not meaningless terms but represented the cold of the early morning or the subdued hour of prayer of the middle of the day when he had left his work in the field or his manuscript in the cloister to come to offer with his fellows his prayers to Almighty God. Thus in his Chronicle we find recorded as a matter of unusual importance that in the "year 381 Ambrosius (St. Ambrose of Milan) "composed Hymns and the Antepheonal" or that in "687 Pope Sergius ordered that the Agnus Dei be said twice during the celebration of Mass." We pass these things over with a shrug as historical details of only relative importance but to him they were vital as explanations of his everyday life.

The Chronicle itself is divided into two parts to which has been added the *Fragmenta Sprottiana*. The first part is mere chronicle, a line or so placed after a date. The second is made up of connected narrative. The *Fragmenta* are, as the name implies, fragments or notes inscribed in the MS. after the two parts of the Chronicle. The whole MS. goes by the name of Thomas Sprott, but as has been noted the end of each part is not his. It is almost impossible to separate the continuation from the original text, but as the outside sources claim the date of 1272 as the dividing line this may be accepted as the traditional if not the accurate line of division. The *Fragmenta* may be Sprott's own notes or may be merely transcripts from the Abbey records.

Pars Prima.

The first part deals with the history of the world from the Creation to 1385 A.D. The traditional division of the history of the world into six ages is followed, as it is in other chronicles of the period.³ The first age stretches from Adam to Noah and follows the Biblical record. To that record mediaeval and other glosses have been added. The first part of the Chronicle begins thus: "Adam, the first man, was made of clay of the

³e.g. Capgrave's *Chronicle of England* and *Chronicon Johannis de Oxenees*.

earth in the field of Damascus and translated to Paradise. On the seventh hour of the same day sin having been committed he was cast after midday in the valley of Josephat.”⁴ Cain we are told committed the seven sins and his descendants were cut off by the flood. The second age lasted from Noah to Abraham and the third from Abraham to David. Occasional references to Greek history or legend occur, but in the main the Chronicle follows the Old Testament. The fourth age lasted David to Daniel and the fifth from Daniel to John the Baptist. The sixth began at the birth of Christ. During the early centuries of the Christian era we find little recorded but the names of the popes from St. Peter on, and such miracles as the “Invention of the Cross” by St. Helena. Occasionally there is a reference which shows how the early centuries were used by the later chroniclers as hunting grounds for ecclesiastical and papal claims. We read that in the year 312 Pope Sylvester ordained that no layman could bring charge against a clerk. In the same way the Donation of Constantine is recorded in full and the Emperor is represented as dowering the Roman Church with special liberties, estates and possessions, and we read that he “gave his imperial seat to St. Peter and his successors.” And with absolutely unconscious humour Sprott adds “and at that time the Devil flying in the air exclaimed, ‘This day is poison poured out on the churches.’”

One striking feature of the Chronicle is the way in which important historical happenings in England are omitted in the first part and are mentioned in the second part. Thus in the first part the year 1066 is passed over without notice, although there is a record in 1069 of the less known and less important attempted invasion of the “sons of Sweyn from Dacia to capture England and take or drive from England William the King.” But if we turn to the second part of the Chronicle we find that the Norman Conquest is mentioned. Here we are told that Harold was killed in battle and William

⁴Cf. Capgrave, Rolls' Series, p. 5. “Anno Mundi. 1. The first Man Adam was made on a Friday, without modir, without fader, in the feld of Damask; and fro that place led into Paradise to dwell there, after dryven oute for syne.”

was victorious,⁵ and at Christmas in the year 1077 he was crowned King at Westminster. A long account is then inserted which deals with William's claim to the throne and tells of Harold's oath to William. In the first part also there is no mention of Magna Carta, although the removal of the Interdict has been recorded in 1213, and in 1215 we read of the execution at Sandwich of a certain monk Stacius "who came with many Frenchmen and six ships and eighty 'cogges.' " * But in the second part there is a record of Magna Carta being signed at "Romningmede" and a short summary of its main provisions is given. The battles of Lewes and Evesham are recorded in the second part but not in the first part. The battle of Crecy, on the other hand, is mentioned in both, as are also the siege of Calais and the battle of Poitiers. The inclusion of these last three is possibly due to the fact that they occur in that portion of the Chronicle written by the continuator. These discrepancies are perhaps due to the fact that the second part of the Chronicle is more definitely confined to English history while the first part is more of the nature of a compendium of universal history.

Pars Secunda.

The Second Part of the Chronicle opens with a long story of the thirty daughters of Cecrops who landed in England and of their adventures with the demons there. Brutus the Trojan appears and founds New Troy or London. More interesting is the account of King Leyr "who made Leicester." The passage is worth quoting in full, although part of it is untranslatable since the Latin is bad.

"This Leyr had three daughters but no son, whose names are Conorilla, Ragan, and Cordinilla. The two first he gave with a third part of the Kingdom to the Dukes of Cornwall and Albany, but the youngest sister he presented to Aganypus, King of France, without part of the Kingdom as marriage portion. After Leyr became sluggish with age⁷ the afore-

⁵p. 112. Tandem Haroldo occiso Willelmo cessit victoria. Et in proximo natali sub anno Domini M LXXVII Westmonasterii in Regem Coronatus est.

⁶A small vessel.

⁷"cenio torpere" is the text, which is not translatable.

mentioned dukes took away the kingdom and the royal power from him. Which done, the King of France came to Britain and conquered the dukes in war and handed back the whole land to King Leyr. But within three years Leyr and Aganypus the Kings having died, Cordinilla was expelled by Megarius and Cunagund her relations and they divided the kingdom between them." From such chronicle accounts as this did Shakespeare get the story of his great drama.

The Roman occupation is touched on and also the introduction of Christianity. Legend and fact are mixed together in vague confusion. Old King Cole appears as the founder of Colchester and is succeeded by Constantine the father of Constantine the Great who married Helena, King Cole or Coole's daughter. After the Donation of Constantine has been hinted at in the gifts of estates and large possession to the Church of God, we find ourselves tracing the fortunes of the would-be emperor Maximus. Soon after Vortigern appears and with him Hengist and Horsa. Vortigern is stated to have given, contrary to the wishes of his nobles, the county of Kent to Hengist as a result of his love for Hengist's daughter Rowen (or Rowena?), who had greeted him at her father's court with the loving cup and the welcome "Wasseyl." To which the King replied "Drynkhayl."⁸ King Arthur receives his mention as having under his control the Kings of the Danes, of Norway, Scotland, and three Kings of Ireland, the Duke of Neustria, and all the Dukes of Greater and Lesser Britain." He also is stated to have slain the kings of Libya and Syria with his own hands, and to have held the Round Table in France where there were "nine kings, eighteen dukes, barons and knights without number, nineteen archbishops and fifty bishops."

Alfred the Great receives credit for the founding of Oxford University and for making peace with the Danes. Edgar is praised for recalling Dunstan and the story is told how that he was rowed by the Kings of Scotland, Cumberland and the Isles and five subkings at Caerleon. The troubles of Ethelred the Unready and the institution of Danegeld are recounted and Edmund Ironsides, as Hearne points out in his introduction, is stated to be Ethelred's legitimate and not his natural

⁸Both words are in English in the Latin text.

son. The strife between Canute and Edmund Ironsides is touched upon and it is related how the war was abandoned as useless and peace was made. "Then Canute said to Edmund, 'You will reign with me in Daneland and I shall reign jointly with you in England,' and so it was."

The Norman Conquest follows next, and short sketches are given of the reigns of the early Norman kings. The terms of the Domesday inquest are given. "He made all England to be described, how much land each baron had, and what fiefs and knights, how many carucates and villeins and what ecclesiastic dignities." The anarchy of Stephen and the reforms of Henry II receive alike but short treatment. About a page is given to each. The Crusade of Richard I is dismissed in a few lines. All that Sprott records is the capture of Acre and the seizure of the King by the Duke of Austria. John fares better since we are told of the loss of Normandy, the Interdict, Magna Carta, and the invasion of Louis of France. A fairly long account is given of Henry III's relations with France. The Baron's war is mentioned but there is no reference to Simon de Montfort. Edward I's parliament in 1272 and the Second Statutes of Westminster receive a mention. His conquest of Wales and attempted conquest of Scotland are touched upon, as is also his Mortmain Statute.

The remainder of Part II is devoted to the reigns of Edward II and Edward III. Nothing of particular interest is to be found in the account. The claim of Edward III to the French throne is recorded and mention is made of the battles of the Hundred Years War. The second part concludes with the death of Edward III in 1377. Its general characteristics are those of Part I, conciseness and lack of critical powers. It is more interesting reading on the whole since there is more continuous narrative than in Part I, but as history the two must rank about equal.

Fragmenta Sprottiana.

These fragments contain some of the most interesting facts which can be gleaned from the Chronicle of Thomas Sprott. The first fragment is a list of the Abbots of St. Augustine, Canterbury, and states the place of their consecration. It is interesting to trace in it echoes of the Investiture

Struggle of the eleventh and early twelfth centuries. The first entry is as follows:

"From the death of Abbot John I to Abbot Hugo Flory for 480 years the Abbots of the place were consecrated in the nearby church⁹ by the Archbishops of Canterbury without exaction of homage (*sine exactione professionis*). But this Hugo was the first to be consecrated in the King's chapel at Westminster which was the cause of the whole trouble."

The date of this consecration is not given but the next two abbots who assumed office in 1074 and 1151 were not consecrated in the royal chapel. One would of course like to connect the election and consecration of the Abbot Hugh I with the clause in the Constitution of Clarendon,¹⁰ which directs that the election of the abbot be held in the King's chapel, but this is impossible, since the abbots seem to be in chronological list and two abbots occur in that list between Hugh I and 1164, the date of the Constitution of Clarendon. The next seven abbots were consecrated in the Roman curia during the period 1176-1272 and were mitred abbots. Then comes one abbot, Thomas Fyndone, "who was consecrated at London by the Archbishop of Durham."¹¹ Five abbots are then given as consecrated at the papal court at Avignon and the list ends abruptly with the consecration of the Abbot Michael by the Bishop of Winchester in 1375. Apparently the Abbot Michael was the reigning abbot when the continuator of Thomas Sprott made the last additions to his manuscript.

The remaining fragments deal chiefly with the temporalities of the Archbishop and the Priory of Canterbury and with the privileges of the Abbey of St. Augustine. A list of papal bulls affecting the Abbey is also given. Then the revenues of the Bishop of Rochester and the taxes of the temporalities of the Prior of Rochester, are recorded. What the connection of these facts with the Abbey of St. Augustine is is not stated. The fragments Hearne claims he found in the original MS.

⁹ista. Canterbury Cathedral.

¹⁰Stubbs, *Charters*, 8th Ed., p. 140. Constitution of Clarendon, cap. XII, in *capella ipsius domini regis debet fieri electio*.

¹¹sic.

which he discovered in the library of Sir Edward Dering of Surrenden Dering in the county of Kent.

No account of the Chronicle of Thomas Sprott would be complete without more lengthy reference to his eighteenth century editor, Thomas Hearne. Hearne was an eighteenth century Oxford scholar, who by his industry and love of ancient MSS. tried to stimulate the study of historical records. His exhaustive researches give the lie to the theory that in the early eighteenth century Oxford was a hive of drones where "Lecturers ceased to lecture" and "readers did not read."¹² Hearne is himself scornful of the historians who "study to speak fairly and ornately and bring nothing to the light of day sought out from the archives and far antiquity of libraries."¹³

Hearne, on the contrary, was a true antiquarian and sought out MSS. wherever he could find them. Through a friend of his he obtained access to the MS. of Thomas Sprott which had "lain in goodness knows what corners" until it came into the possession of Sir Edward Dering, who flourished during the reign of Charles I. This worthy baronet was an eager collector of MSS. and had planned a history of his native county of Kent, but was prevented from writing it by the outbreak of the Civil War and his own untimely death. From a descendant of his, also a Sir Edward Dering, Thomas Hearne obtained the MS. of the Chronicle of Thomas Sprott. He laboured at it and in 1719 gave his labours to the world.

Hearne's edition is the only edition of the Chronicle mentioned in that learned and exhaustive work, *A Descriptive Catalogue of Material Relating to the History of Great Britain and Ireland*, which was published in London in 1862. It may therefore be taken as the only printed edition of the Chronicle and so it is to him that we owe our knowledge of Thomas Sprott. The 1719 edition is a small octavo volume bound in leather printed at the Clarendon Press, and dated from the Sheldonian Theatre. It contains in addition to the Chronicle of Thomas Sprott certain other documents which Hearne had collected in MSS. The chief of these are "A Tract relating to

¹²Headlam, Oxford (Mediaeval Towns Series), p. 402.

¹³Hearne's Introduction, p. IX.

Peterborough and Ramsey Abbies: Transcribed from a strange old defaced parchment MS. in the hands of Mr. John Murray of London, Gent.", and also the ¹⁴ "Brief History of the Antiquity and Origin of the University of Cambridge by Nicholas Cantaleysus. But since these documents, interesting enough in their own way, have no part in the Chronicle of Thomas Sprott, they can have no place in this essay. They remain none the less a monument to the antiquarian learning of Thomas Hearne.

Of what value then is the Chronicle of Thomas Sprott? It cannot be said to be one of the greatest of English Chronicles and can never hope to rank, for example, with Bede, the Anglo-Saxon Chronicle, or Matthew Paris. It contains little first-hand information except when it treats of the affairs of the Abbey of St. Augustine at Canterbury. But it is none the less noteworthy as an example of the lesser chronicles of England made up by the monks in their scriptoria, and recording the events of universal history which they thought important. It is a link with the past and allows us to glean some stray straws from the great storehouse of mediaeval learning and learnedness.

WALTER SAGE.

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CURRENT EVENTS.

BRITISH.

Blockade and the Navy.

Public opinion was much perturbed at the beginning of the year by evidence which appeared to show that Germany continued to receive much material from the outside world. Uneasiness has been allayed, though not dispelled, by the speech of Sir Edward Grey on January 26th, and the later appointment of Lord Robert Cecil to the post of Minister of Blockade. The matters at issue were three in number—the relation of the Foreign Office to the Admiralty, the amount that leaked through to Germany, and the status of Orders in Council.

(1) It was alleged that the Foreign Office prevented the Navy from doing its duty. This appears to be nothing more than the ordinary form of insinuation adopted by those who wish to oust the Foreign Minister or to prove the existence of some sinister pro-German influence among his officials. It is perfectly clear that a blockade is a sieve rather than a watertight barrier, involving discrimination according to reasonable tests, and that the Navy is the executive arm, not the organ that adjudges. The latter function must be performed under authority of the competent Admiralty and Foreign Office officials. With the creation of a special ministry this authority has been concentrated, but the responsible officials in both offices deny that any conflict of interest arose between them. 'There ought not,' said Sir Edward Grey, 'to be statements made, utterly unfounded as they are, that lead the Navy to suppose that the work they are doing for the country, or any part of their work, is being undone by the Government, or any department of the Government.'

(2) On the second point evidence is more difficult to weigh. It is certain that goods do leak into Germany. It is equally certain that the figures adduced by the *Morning Post* and the *Daily Mail* were fantastically inaccurate. The former paper actually claimed that the total exports of the United States to Europe in general including France, Russia, Italy, Spain, the Balkans and Greece, were sent to Holland and Scandinavia

alone. From this it argued that the excess must have gone to Germany. Boots from the same source sent to Italy and Russia were represented as directed to the German Army. It was said that the export of wheat to the four northern countries rose from 19 million bushels during the first ten months of 1913 to 50 million in the corresponding period of 1915. Exactly the same error was made. 23 million represent the excess requirements of Mediterranean countries since the Black Sea supply was cut off. Of the remaining 6 million excess some went to Belgium under the international arrangement, and the rest was a normal increase in the Scandinavian and Dutch demand, since the armies were on a war footing, and the harvest had been defective. It is the same with wheat-flour, where similar inaccurate assumptions were made. The most comical case was that of American meat, where the Foreign Office was accused of having allowed into Germany Chicago products actually in British Prize Courts. After this the error of the *Daily Mail* in increasing the percentages of its statistics by 100% is trivial. Some critics of the Foreign Office have described these statistics as 'telling half the truth' and leaving the Government to tell the other half.

The difficulty of discriminating between neutral and enemy trade cannot be solved by phrases about 'absolute blockade' and the like. It is here that the confusing influence of the so-called expert comes into play. Nothing is easier than for an expert to write to the papers and say, 'Cotton is an excellent component of munitions, therefore cotton must be stopped.' That is a laboratory argument, remote from reality. The chemist can pronounce on chemical matters, but he is no more an expert on international affairs than a physicist like Sir William Crookes or Sir Oliver Lodge, as such, is a competent judge on physical research. Neither class is fitted by its special training to weigh the human element. All turns on the question what would have happened had cotton been stopped much earlier than it was. Suppose, as there is some reason to believe, that Sweden was an emporium of cotton both for Russia and for Germany and that stoppage of supplies for the one meant that the other was cut off too, then at least two considerations had to be weighed against one another and in both cases the point should be that cotton was needed for explosives. Again, while it is easy

to say that neutrals need not be considered, it is another thing for a country fighting on behalf of neutrality to disregard its own principles. The decisive practical test, however, is the risk attending such infraction of reasonable neutral claims. On that point only those who conduct the Allied foreign policy have 'expert' knowledge. Sir Edward Grey says that the whole world would have turned upon us. The kind of question one must consider in judging the manner and degree of restriction that belligerents can wisely exercise on neutral trade may be represented by the following. Would Italy have joined the Alliance had we exercised the full swing of our power during the early months of the war? What would Russia have to say if British pressure on Sweden endangered her imports of necessary articles (they were endangered), or threatened to bring down a new enemy on her flank? The scientific method here is the empirical one, which, though it may seem painfully slow, is yet in touch with reality, while the syllogisms of eminent scientists are not.* The strongest case against the Foreign Office has been taken in order to show that the problem is not so straightforward as it appears to be. Whether the Cabinet moved too slowly in regard to cotton I do not presume to say, because the decisive facts are unknown.

The empirical methods actually adopted by the Government consist in invoking the help of neutrals themselves. They are invited to 'ration' themselves according to a reasonable estimate of their needs, and to guarantee that such rations shall not pass to Germany. At the worst this method allows the surplus of four small countries to pass to a beleaguered alliance of 100,000,000. The slowness of negotiation has permitted Germany to secure provisions that might have been withheld. But the goodwill of neutrals is secured, so far as goodwill survives any pressure at all, and they become responsible for goods passing into their territory. Lord Farrington, an able business man, has recently examined the system on behalf of the Foreign Office, and was able to state that the

*It is interesting to note the reverence recently paid to the opinion of scientists on subjects outside their special competence. When Lord Haldane said that Germans could invent a substitute for cotton in explosives and Sir William Ramsay contradicted him the latter spoke as an expert; but when he went on to dictate policy he became a mere layman. Yet both his *dicta* were accepted as of equal value.

management on the whole was satisfactory. 'The general tendency is to show that the maximum is being done which can be done without serious trouble with neutral countries.' These words of Sir Edward Grey indicate the weakness and strength of the plan. It will depend on the steady vigilance of our intelligence service in order that the neutral trusts may not relax. But it must not be forgotten that Great Britain possesses many indirect ways of punishing those who transgress the agreement. For example, neutral lines, like the Dutch services, are obliged to obey the rules we impose because they will be denied the use of British coaling stations upon any infringement.

(3) The third question concerns the advisability of substituting a formal blockade for the Orders in Council. This is a different matter from the problem just discussed. It is not primarily a matter of efficiency but of expediency, to be determined solely by our relation to neutrals. Why the Orders in Council are preferable it is hard to see. No doubt the fact that neutral ships carrying contraband are not confiscated makes the situation less irksome for traders, but the device hardly satisfies minds accustomed to act by precedent. The United States has historically been the champion of neutral rights according to a rather narrow legalism, although its acts as a belligerent have not been bound by the past. The mental bent of President Wilson predisposes him to insist on the letter of the law rather than on its spirit, and there is material for an acrimonious controversy in the present situation. If we substituted a legal blockade the change in form would answer some of the arguments presented in the last note sent by Mr Lansing, and the deterrent effect of confiscation would have some practical effect on attempted evasions of the naval cordon. But is it fair to presume that our relations with European neutrals may have determined the technically looser form of the Orders in Council. The material issue is whether neutrals deny our right, by whatever means asserted, to prevent goods from entering Germany. Such a denial will be regarded by our Government as an unfriendly act.

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The other naval matter which has aroused intense feeling is the attempt to replace Sir Henry Jackson by Lord Fisher at

the Admiralty. Mr. Churchill has probably killed his own scheme by precipitate action, and, it may be hoped, hurt his own political prospects. The general principles involved are discussed in the following section. Here it may be said that the speech followed a campaign conducted in newspapers of both parties, and that the ground for the agitation is largely that the public know what the Navy wants. As an Admiral wittily said, 'Do the newspapers imagine that Fleet Street is so called because all naval knowledge is concentrated there?' It is true that Lord Fisher has vast experience and is the best known naval officer, but at a time when technique and methods change so fast, it is essential to have in control a man who has used the machines he is to direct. Therefore the analogy of Lords St. Vincent and Barham is not relevant. For no such rapid development took place after their active sea-life had ended. It has been the custom for naval opinion to guide appointments to the supreme post, and all the evidence seems to show that Sir Henry Jackson is the choice of the service. It is true that the public hears less of naval activity now, but is that an unmixed disadvantage? The service is proud to be called the 'silent' Navy. Another objection to any change is revealed by the agitation itself. Whenever Lord Fisher's influence has been felt, there have been two bitterly opposed parties. That may not be his fault, but it is not wise to introduce faction into a singularly united service. Nothing is more detestable than newspaper endeavours in this war to set French against Kitchener, the Admiralty against the Foreign Office, the First Sea Lord and the First Lord against their predecessors. That kind of efficiency may well be left to Germany.

British Morale.

The 'strong nerves' which will win this war are needed by those behind the lines as well as by the soldier. The latter can be trusted to the last, but civilian morale is more incalculable. Ignorance is the chief cause either of pessimism or optimism, and that is the thing that all men possess in plenty. The censor allows only an inadequate glimpse of what is happening. Some deprivation of facts is inevitable, but another kind of ignorance forms a most dangerous compound with this poverty of news. It needs some elementary grasp of his-

tory and strategy to be able even dimly to comprehend what is vital in a war like this. Newspapers can do two great services to the public in these days. The first is to criticize where public duty demands criticism and the second is to create an informed opinion upon the course of events. On the other hand, the greatest disservice a newspaper or individual can do to his country is to nag, or to bemuse opinion by false optimism or pessimism.

There are signs that some English opinion, though not a great part of it, is endangered by such criticism. I shall take some concrete examples of this kind of demagoguery. The Zeppelin raids have a military object in so far as they shake the nerve of the English people, or divert us from our proper military objects. The outcry against the Government over this has taken the following forms—that we should have been better prepared, that a minister should not have boasted prematurely of our ability to repel such raids, that we should conduct reprisals, and that air-defence is our first business. However justified the first two criticisms may be, it is the third and more particularly the last that affect future policy. The demand for reprisals is misleading in so far as it confuses military ends with other purposes. The bombing of Zeebrugge was a reprisal in the sense that it injured the German power to strike with aeroplanes and submarines. This serves a direct military object. But many desire that German cities shall be bombed in order that civilian pressure may be brought to bear on the Imperial Government and Zeppelin raids come to an end. I will not argue that under no conceivable circumstances would such a step be justified. But if we ask our aviators—who are gentlemen—to drop bombs on civilians, we should be reasonably certain that the measure will succeed and that they are not being diverted from a more effective military purpose. What amount of frightfulness to a civilian population is necessary to move the German General Staff from its plans? Again, if reprisals against civilians are to be undertaken, it is not decent to argue, like Sir Arthur Conan Doyle, that German military establishments are likely to be damaged and that it is no fault of ours if civilians suffer too. That is simply to copy the odious Teutonic hypocrisy which pretends that the Zeppelins are destroying munition-

works instead of admitting that they seek to break civilian nerve. There may be a military case for such action, I repeat, but let it be argued honestly.

This brings up the larger question of the proper use of aircraft. Suppose we develop a large defence force when aeroplanes are badly needed at the front. Nothing would better suit the Germans. For we should be diverting men, machines and factories from their most effective service to a minor end. In war, as in boxing, the worst defence is to put your hand in the place where you were last hit. No conceivable number of aeroplanes can absolutely prevent a Zeppelin from reaching some part of England in the dark, but the multiplication of aeroplanes in England itself beyond a certain point may starve the air service elsewhere, or cripple other and proportionately more important arms. Now none but the military authorities can say what are our chief needs, and any attempt to influence them by panic will simply lessen our chance of winning. It sounds effective and business-like to demand 'battleship planes,' but the epithet is pure journalese. The new Fokker plane, which was made the occasion of a scare, is neither new nor German. It is a French plane practically exactly copied. The *Daily Mail* pictured this short-flight machine as capable of making raids on England along with the Zeppelins (see 'Land and Water' for 9th March). In the last set of *Mails* arriving in this country nothing was said of the Fokker, but the scare contributed to the main purpose, namely, a shaking of confidence in the Government. Only those who know by experience the value of different types of plane, and—what is most important—the relative economy in labour and material required to produce each type, are competent to judge about our needs. The fundamental fact is this, that the factories of the world are strained to produce the material necessary for military purposes, and that the War Office and Admiralty authorities have therefore to strike a balance between competing demands. They know or should know what is expedient, while their zealous critics are caught up with gusts of enthusiasm for this arm or that, without seeing the whole. Thus Lord Northcliffe, the most powerful demagogue in England, having done much to develop aeroplanes by judicious prizes, thinks that an enormous number

of aircraft could hop an army over the unbreakable German line and attack it in the rear. I imagine that sane military opinion would class this bright idea with the effervescences of Mr. Wells, yet his organ drums the notion into the head of the British public. Again there is the scare about the seventeen-inch naval gun. The genesis of this story is typical enough to be worth repeating. Mr. James Douglas is a literary critic with an enthusiasm for Swinburne and Watts-Dunton. This literary expert heard that the seventeen-inch gun which dropped shells into Dunkirk was a naval gun. It followed that there must be ships to carry such a gun; *ergo*, our command of the sea was imperilled. Such was the story that he unfolded in the *Daily News*. Mr. Maxse, of the *National Review*, who loves the *News* little but the Government less, took up the tale, and gave it such publicity as his organ commands. The only effect of this kind of thing is to make our flesh creep. If the Germans have such ships, it is too late to counter-build; and if they have them, the Admiralty probably knew it before Mr. Douglas. The fact seems to be that the Dunkirk guns were not naval guns at all, but howitzers firing at extreme range. Why the Germans should reveal a carefully guarded secret in order to terrorize the civilians of Dunkirk is not explained by the sponsors of this story. So far as the argument from gunnery goes, it appears that experts are doubtful whether any gun over 15 inches will give results to compensate for the smaller number proportionately which a vessel must carry; for the fifteen-inch gun hits at the maximum range now practicable, and the cumulative effect of the fire from a Dreadnought so armed would be greater than that of a comparable ship carrying the larger gun. The notion underlying this story, it will be observed, is that which prompted the demand for the battleship plane, namely, that there is virtue in what is big, apart from other considerations. It is depressing to think that in a country engaged in a great war the same habit of mind should be revealed as prompted the United States Congress, regardless of policy or experience, to order the biggest battleship afloat with the biggest guns.

These vagaries, however, are but offshoots of a general habit of mind, which does not face the true conditions of this war. The naval blockade is considered in another place; here we

may touch on a prevalent opinion about the land warfare. It is held that the German line cannot be broken through. This is why men take refuge in aerial warfare as a means of circumventing what cannot be destroyed by direct attack. It is thought that as neither side has been able to do more than dint the hostile lines in a year, a lasting deadlock must result. A view based on such evidence is worthless, for it fails to weigh the conditions upon which the holding of any line depends. The present German position represents the furthest point to which an immensely strong force has been able to thrust, and it advanced no further because at that point the Allies were strong enough in men and material to check the drive. If reserves and material were inexhaustible, and morale remained unimpaired, there is perhaps no ground why the war should not continue at a deadlock. But the whole matter turns on the question whether German reserves are not beginning to fall off while the Allied forces continue to grow stronger in men and munitions. I do not quote the judgment of war critics, who may have a thesis to prove. But any one who has followed the reports of the French General Staff must have observed that the experts who examine the data about the German strength are certain (1) that the German official list of losses is grossly misleading, (2) that they are now about the point when their reserves are beginning to fall off. It is in the light of this that General Joffre's dictum about 'nibbling' the Germans out of France must be read. He was hardly speaking of recovering territory patch by patch, but of depleting the enemy's strength till the line could not stand a great strain. That is, the deciding factor lies with the Allies because their reserves, if not rashly used up, will outlast the Germans. The best opinion appears to interpret the battle of Verdun in this light. According to this it was imperative for the Germans to secure a decision before their deficiencies begin seriously to impair the strength of their army. Consequently such a drive was both expected and prepared for. But an attack that fails brings the decisive day much nearer owing to the wastage of men. On the other hand, the task of the French was not so much to hold every inch of ground as to make the Germans pay a sufficient price for any ground given up. Now it is all-important that public opinion should understand that the war

is a matter of reserves of men and material. Yet at the very climax of the battle of Verdun the English paper with the largest circulation gives its two best columns to a gentleman who used the strength of the German attack to laugh the other view out of court. The *fact* that the Germans could attack so strongly proved to him that there was nothing in the argument about reserves. It never occurred to this expert that facts have reasons, and that the whole matter turned on the *reason* which led the enemy to launch a great onslaught so early in the year.

If such criticism were simply uninformed opinion about technical matters, no great harm would be done. But as public opinion governs England, the political consequences may be serious, and that in two ways. If the German line is said to be impregnable and no decision seems to be in sight, may the public not weary of a war that threatens to drift on indefinitely and inconclusively? Out of the chaos of views will arise demands for unsound methods or even for premature peace. Lord Northcliffe's following will exaggerate the effect that aircraft may produce, while Mr. Snowden will repeat with increasing force the view that the Germans cannot be beaten and that we must think of terms. Or again, it will be said that economic pressure will accomplish what military effort cannot bring about. But it is as reasonable to presume that the stiffer such pressure becomes the more desperate will be Germany's efforts to force a military decision at some point. Any view which separates the specifically economic side of the situation from the military end will clog our main endeavour. This fallacy is best exemplified by the protests of some Radical papers against the size of the armies now being raised in England. It is urged that the paramount necessity is to finance the war, which cannot be done if labour is depleted beyond a certain point, and that the reserves now called out will be used only to defend the shores of England, where the Navy renders them superfluous. The first point is legitimate if it indicates that no nation can put more than a certain proportion of its fit population in the field.* But the calculation

*I have before me a letter from the manager of the Alhambra Music Hall in London, who points out the serious economic loss if such as he are called up to service.

can only be successfully made by those who know all the facts, and the argument cannot be put forward on merely abstract grounds. The second objection has small claim to be considered, being advanced to buttress the economic contention. None but the War Office and Admiralty are in a position to judge what reserves will be needed at the front for this year's campaign or the next, or to estimate what danger of a German raid may exist. The theory that any navy, however strong, may be an absolute security against any invasion may have as little ground as other popular beliefs. Nor does it follow that reserves which are never likely to see action have no military value. For the war may be won by the powers who can throw in such virgin troops if necessary. These criticisms, then, endanger the issue of the war by tampering with the vital matter of reserves, although technical experts alone can judge the matter.

The second danger that is entailed by confusion about the purpose of the war is the weakening of the central Government at a time when it needs support and sane criticism. Out of the chaos of conflicting voices there is harmony on one point—that a Government which does not carry out this or that darling policy is no Government for us. Criticism does not fasten merely on the policy of the Cabinet but on its composition. It is a platitude that committees do not act and lawyers cannot rule. From this premise the critics go on to demand other committees and other lawyers like Sir Edward Carson (though his boom has disappeared) or Mr. Lloyd George. Behind this demand there lies, as it appears to the writer, an unexpressed postulate, that there is somewhere a Carlylean Man, who will sweep away every incompetence and from our present ills bring order and victory. Such a man arrives; he is not called forth by clamour, though the prophets cut themselves with knives. It is a serious question whether the vastness of present day affairs is not beyond the power even of a great man. Napoleon could personally control both army and state, though he was outwitted at sea; but no such supervision could possibly be exercised to-day. The evolution of Army General Staffs is but one symptom that the machine is too great for the individual. Lord Bryce has suggested that while civilization has grown vastly complex, it is managed by indi-

viduals who are not equal to the engine they control. However that may be, it is wise not to throw away the machinery we have, but rather to adopt it empirically as needs arise and men are forthcoming. There is but one criterion of the honesty and patriotism of all critics of the Government. Are they trying to finish the war successfully or playing a game of 'ins' and 'outs' as well? Within the last few days Lord Derby has been placed on the Air Committee. It seems to the writer that preparations are already being made in a certain section of the press to discredit him before his work is well begun, by turning against him the opinion of those who are dissatisfied with the Derby recruiting scheme, and by suggesting that he has no special knowledge of the needs of the air service. The course of the next few months may show whether the uneasiness here expressed is well founded.

German Morale.

Amid the evidence which slowly accumulates that demoralization is setting in within Germany this item may be included. Earlier in the war much was said of the extraordinary uplifting effect that the time had had on the German population. I take the following quotations from the *Nineteenth Century*.*

The *Kreuzzeitung*†: 'The people are living a life of such repulsive immorality and indecency, so shameless in its open ostentation and depravity, that soldiers returning turn their heads away in horror and ask themselves why they should sacrifice their lives for such a people. Did these heroes know more of the secret of what is really going on, they would see that, dark as the picture is on the surface, it is far blacker underneath.'

Berliner Tageblatt: 'News of murders of the most revolting description reach us from all parts of the Empire. Convictions of all kinds of swindling operations occur daily.'

'At the recent meeting of the General Synod of Berlin the Rev. Dr. Weber of Bonn declared that conditions on the

*Originally they come from the London *Sunday Times*.

†Edited by Professor Schiemann (until the war at all events), who was or is a handyman of the Kaiser.

Rhines provinces were unspeakable, that the criminal and immoral contamination of the youth of both sexes was appalling. Other clergymen told similar tales of their own districts, and it was generally decided that the state of affairs was so bad that it was a case for special legislation. The great war, said one pastor, which, it was expected, would raise the moral tone of the nation, had, to the horror of all true Germans, the exactly opposite effect.'

I may place as foil to this the outpourings of another pastor who published some time back the results of his perusal of 800 Protestant war sermons. 'Place our people in comparison with those three torchbearers to the War-Fury—little as it may become us to exalt ourselves for no reason above others—who would be so unjust as to deny that Germany is not merely the most pious relatively to the others, but that she also stands at the highest grade of civilization. And shall God decree to condemn this people to fall! Unthinkable! Impossible!' 'How many has the war made selfless. No trace of desire for plunder and lust of booty. They share the last bite with the enemy inhabitants of the conquered country. Of that we have unnumbered proofs. The kindness of the German, which was often counted against him as folly, is now his shining virtue, which wins for him even the foeman's heart!' One cannot merely laugh at this. It is a sign of the thick mantle of illusion that Germans had wrapped themselves in. Now that is being torn away. But we must not count on disillusionment or demoralization to end the war, though it may help on that end. Any such hope ignores the helplessness of the German people against their rulers.

A S. F.

AMERICAN.

Professor Muensterberg and "the Hyphen."

Professor Hugo Muensterberg concludes an article on this subject with the glowing words: "It is easy to denounce the hyphenated citizens. He who sees deeper must recognize that the hyphen is a symbol of honor and that the German-Americans, and the Irish-Americans, the Italian-Americans and the Norwegian-Americans, and the Anglo-

Americans may all be equally proud of their hyphen if it is to them a pledge to contribute their racial ideals to the glorious fabric of the American nation." He opens this article on "The Impeachment of German Americans" with the clear statement: "This is not written in my own defence. Whenever during this year of displeasure Germanophobic voices have thundered against me the crushing question Are you an American or merely a German-American? I have answered with a clear conscience: Neither; I am a German and have never intended to be anything else." He did not leave Germany because he liked it less but because he was invited to develop the interest in experimental psychology at Harvard on conditions of retaining his citizenship in the Fatherland; he resisted every temptation and stayed on because he "had become fascinated by the hope to help toward international amity." He could have studied psychology as well in Germany but as "an interpreter of German ideals to Anglo-Saxon peoples he had to stay in America." When "American sentiment rushed into the anti-German camp, I remained loyal to my aim of interpreting the other side. I did not attack the enemies of Germany, but tried to show that Germany was not to blame either, that every country fulfilled its historic duty." So much for the personal statement which is simple and frank enough from one who for eighteen years has occupied the position of an interpreter and missionary in an alien land. But as one Harvard professor—Albert Bushnell Hart—says, "It may appear before we get through that Muensterberg's agreeable words express a doctrine which till a year ago was novel to Americans, and which involves a theory of race relations which would be of immense harm to the Republic." According to the German professor the German-Americans have simply, in a neutral country, "resisted the efforts to tarnish and stain the land of their parents and grandparents." He admits, however, that one of the most powerful denunciations of the attempt to form an alien party on American soil comes from a man who was born in Germany, Oswald Garrison Villard, but this German we are told has been carried away by his flaming rhetoric, fit only for freshmen debaters, who have no historical sense, and "still wrangle about the question whether the monarchical or republican State form is the better one in general." Quoting

a statement of President Lowell "that we are hysteric people," he says: "If hysteria takes hold of the national mind, the process of wholesome discipline must be stopped. It is easy to make a hero out of Henry Thaw, and to make a criminal out of William II, but it cannot be done without serious harm to the conscience of the whole people." The thing to save the American nation is German discipline and efficiency. Germany he tells us "has won on land against a threefold superiority." (?) "Who has done it? Hindenberg had his share, but German parents who taught their children discipline, German school teachers who taught their pupils thoroughness, have won the war up to to-day." America needs to look at home for the enemy. This scientific professor is not quite free from "hysteria" in the way in which he makes this point. Note how the learned psychologist can write about the American demand that Germany should respect American lives. A note was sent declaring that it would be "an unfriendly act in the ominous sense of diplomatic language if the further pursuit of German warfare against English ships should lead to the drowning of an American citizen." Some millions read with enthusiasm, others with fear, others with despair. "But a higher power than human diplomacy gave the answer without waiting, right in the hour in which the question was asked. On the same morning on which Secretary Lansing's message was heard around the world, not one, not ten, not a hundred, but nearly a thousand American citizens were drowned and found a death of horror in the water." What the Eastland accident had to do with the German efficiency in slaughtering helpless women and children we fail to see. But the professor seems to be as intimate with "the higher power" as his beloved Kaiser. He says, "remember the Eastland," and we suppose that means "forget the Lusitania and the Arabic." He asks: "But is it true that monarchical Germany is really less self-governing than republican America? So far from aristocrats being the war-makers, the Kaiser and the Chancellor are in favour of compromises and conservative peace conditions while Tirpitz, the man of the middle class, and the industrial associations insist on sharper warfare and annexations in France and Russia. The Reichstag, elected by universal suffrage, governs the country, and what has the antiquated diet of Prussia

to do with German politics?" It is only necessary to say that these statements could be controverted by the words of loyal Germans written before the war. Men of diverse standpoints admitted that the political backwardness of Prussia was a cause of friction and source of danger in the Empire. One more word as to the effect of the war upon German-Americans: "Their whole devotion to the overindividual ends, their faith in the State as bearer of the ideals, their trust in thoroughness and discipline, in purity and loyalty were involved. They had become almost unconscious of this contrast in the routine of everyday life. But the great struggle about the war has awakened the burning consciousness of the tremendous issue. They suddenly felt with shame that they had not done enough to bring these German ideals into the American life and to arouse understanding for their eternal value. Now they suddenly knew that they would disgrace themselves as Americans if they were disloyal to their foremost American duty. They pledged themselves to keep the fire of the German belief alive on their hearth forever." Very fine, but the other Harvard professor, A. B. Hart, has some rather awkward questions to ask. "It is well for some of the alien journalists who have so misused our hospitality that they are not staying under an 'overindividual' in a Supreme State. What would the German government do to Germans in Berlin who tried to induce Americans who had become nationalized to start a political propaganda against, let us say, monarchy?" "Further, has the German government allowed the Poles 'to keep the fire of the Polish belief alive on their hearths for ever?' or the French of Lorraine, have they been allowed 'to keep the fire of the French belief alive on their hearths forever?' or also the Danes to make a contribution to the common life of the Empire?" But the American professor goes to the heart of the matter when he rejects the German conception of the State as an "over-individual" with a sort of supernatural power. "Mere human beings know both the Church and the State only as a combination of other human beings acting through human beings." Professor Muensterberg's article is certainly a clever piece of special pleading but it is not likely to deceive any real student of history. On this side of the Atlantic the "authority" of a professor is not greater than the reasonableness of the argu-

ments that he presents. In the meantime "the hyphen" is causing a lot of trouble and Colonel George Harvey tells us that it must go. "We are confronted with the development of faction based on alien interests, fomented and maintained by great masses of foreign-born on closely foreign-descended citizens, whose naturalization has been technical and legal but not spiritual and vital—in brief, the Hyphenates." "At present there are hundreds of thousands who have not become citizens and who apparently have no thought of so doing. Of some important nationalities among our immigrants less than fifty, or even forty, per cent. have become naturalized." He denounces the societies which induce their members "to vote for or against this or that, not because they are Americans but because they are aliens, and not because of American interests and welfare but because of the interests and welfare of the old country." "American citizens must be Americans, pure and simple. The Hyphen must go." This is all very well and from the national standpoint quite reasonable, but the fact is that "the melting pot" has not yet fused its various ingredients, and it looks as if in recent years there had been an increase of those elements that never meant to be fused. The Colonel naturally wishes to have all new-comers endowed not only with citizenship papers but with an American mind, American sympathies and ideals. A desirable end no doubt but one not to be easily and quickly accomplished.

The Hysterical People.

Professor Muensterberg has quoted an American against themselves to the effect that they are "hysteric." But the present crisis does not bear out the statement. Notwithstanding strong statements in the New York press they submitted after each outrage to the "cooling off" process advised by their government. One has to admit that when President Wilson left the calmer atmosphere of the diplomatic parlour and went on the stump his platform rhetoric gained something of hysteric flavour. "The American navy ought in my judgment to be incomparably the greatest navy in the world." So that it was suggested by a New York journal that if the applause was loud enough on his next trip he might even demand the great-

est standing army in the world. Those who study the psychology of the crowd tells us that "the collective mentality of a crowd is that of its lowest and weakest members, and the presence of a fair number of hysterics would therefore be enough to account for a collective display of hysteria." This is rather hard on "the crowd," and let us hope that it is not all the truth. It is admitted that the British public while on the whole fairly steady, has had some slight attacks of hysteria, while the French, having had a reputation in that direction, have surprised the world by their quiet determination and grim tenacity. A writer in the *Illustrated London News* (March 4, 1916) makes a formal charge of this nature against the Germans who were supposed to be a solid, sober people. "The hysterical diathesis or character, however it evolves, so far from setting itself to the steady accomplishment of a great purpose, shows itself, in the words of a great medical authority on the subject, in emotional instability, in readiness to be influenced, a tendency to make sensations, a remarkable egotism, and a desire to conspire to fabricate and simulate. All these symptoms seem to be manifested in what we hear of the conduct of the German, especially the Prussian-civilian crowd and of the German soldiery. They have shown no sign of their presence among any of the nations allied against them and this offers much hope for the future." This writer expects that one of these days the Germans will get "a cold douche," which seems to be the proper treatment for this disease, as it leads to the collapse of the patient and the departure of the attack. This diagnosis, however, is from "an enemy" with whom the wish may be father to the thought. But when a German newspaper, the *Koelnische Volkszeitung*, can write in the following strain it does not seem far out: "Come then at last thou strong will! Give, O unfrightened spirit, room to our submarines. Give them a fair outlook. Make them free for a hunt as when archers go on the track of wolves!"

"Seize those who have stirred up the world conflagration, banish them forever in their kingdom of fog from which they have crawled out, the cruel and cunning, the howling murder band, who dare not meet their enemy in the open, who have filled the earth with blood and misery. All of us, and after us our children and children's children, will bless the moment

when thou, O German spirit, will speak the words, 'Nightcap off, pickelhaube on! Submariners, make a clean sweep!'"

This is certainly very rich from one who talks about "meeting the enemy in the open," but it could be multiplied indefinitely. The theologian, F. Koehler, a Berlin pastor, tells us that he has read 800 testimonies by Protestant preachers and boiled them down into a pamphlet of 55 pages. It is rather too much to expect a man to maintain his balance after an ordeal of that kind and we suspect that our pastor was rather unsettled before he started. However that may be he closes with a benediction on the German sword which seems to be his own production and is certainly mad enough. "Huzza, how it rushes from its sheath! How it flashes in the May morning sunshine! God has thrust thee into our hand, we embrace thee as a bride. Now dost thou rest in our strong (nervigen) fist, now our highest strength lays hold on thee. Thou art shaped for destruction, dedicated to protection; now we honour thee our herald of freedom. Thy lightning stroke has become to us the rhythm of our life. Thy steel is our congealed strength, thy power is our might. For thou art the final reason. Thou dear striker art for us a bearer of the spirit. Thou art not merely the *ultimate ratio* of kings; we priests also have part in thee, and thou in us," etc. And in that style this wonderful "grace" or "benediction" goes on for another page, increasing in fury, until "in the name of the Lord it hacks a way through." Surely too many sermons on the war have made him mad. What shall we say then of the statement attributed to General von Disfurth: "The commonest, ugliest stone put up to mark the burial place of a German grenadier is a more glorious and venerable monument than all the cathedrals of Europe put together." It reminds one of the remark of a German journalist that it was better for London to be destroyed than for their "grey heroes" to be slaughtered, for that would end the war. This wild extravagance is certainly a sign of a want of balance and the need of "a cold douche" of some kind. But when we read Haeckel's peace terms and Professor Harnack's latest statement that the Norwegians "must arm for the time which will one day come when they must defend their German Lutheran existence against the Russian or the British Imperium," we feel that there is some excuse for the common journalist,

when a learned historian can write such nonsense. G. K. Chesterton, who has now got something living to talk about, says: "The General really means that the difference between Germans and non-Germans is so great that German trifles are more important than non-German treasures, as a giant's toothpick might be taller than a man's walking stick, or an archangel's feather might be larger than a sparrow's wing. In other words, the General is mad. He sees something that is not there. For a real giant could walk across Europe from the Latins to the Slavs, and right through the Germans, without seeing any difference beyond a slight dullness and tameness in the central populations. The mere external civilization would strike the giant's eye as pretty much the same everywhere. If he were a simple giant, he would see that the civilization was common to the French and Germans. If he were a learned giant, he would know it was mostly copied from the French. But no giant in the wildest fairy tale could entertain the fancy of there being such a difference as the poor General's distinction implies—by which one dead German weighs more than forty dead Frenchmen." The pity of it is that the German madness should cost the world and themselves so dear. In our worship of "science" we little thought the time would come when these scathing words of Chesterton would express our sober feeling: "It is precisely in the contributions that science has made to their side that we find the two really intolerable elements; the element of torture and the element of treachery. There was a dramatic drop in their moral standard when they discovered that the test-tube is mightier than the sword. The weapons of the primitive tribesman and the savage hunter were not only more chivalrous but were actually more humane. The captives of the bow and spear were better off than those who inhaled the breezes made fragrant by German doctors in Flanders, or those who 'drank the waters' medicated by German doctors in Africa. There is no reason to respect the chemists who work in the domains of Kaiser William, except in the sense that we respect the chemists who worked in the service of Caesar Borgia."

The Position of the United States.

It is not the business of those who are intensely interested in the great struggle to criticise or denounce either the people

or the Government of the United States. When, soon after the outbreak of war Sir Edward Grey was asked for a message by an American Editor he sent very few words, simply stating his belief that Britain was fighting against militarism for liberty and independence and to redress the cruel wrong done to Belgium and added, "What influence the United States can exercise, and to what end and when their influence should be used, is a question for their own people to decide." Dr. Von Bethmann-Hollweg replied, "The people of the United States will best serve the cause of peace and humanity by being not only neutral according to the letter of President Wilson's proclamation, but also impartial in the spirit of his further utterance." And then he proceeds to help them by giving a statement, which is certainly partial enough, in which he says, "The cases of Belgium and Luxemburg are identical. The latter country was really neutral, did not fight, and has suffered no losses at all." Now in this brief statement there are more errors than sentences. A man does not need to be learned either in history or diplomacy to know that the cases are *not* identical. Secondly, a country is not *really neutral* that allows an army to go through to attack a neighbour. But we have to excuse this "country" when we remember that its whole population is about half that of Montreal, and its capital city has scarcely more people than Kingston. I was talking to a city official there many years ago and he said, "Ours is a small army but we have to keep it." Well, I suppose their microscopic army gave them some dignity and pleasure though their fortifications had been dismantled by order of the Powers. Thirdly, Luxemburg has suffered in the meantime the loss of any independence it possessed and may yet suffer material hardship. "Now we know," says the German Chancellor, "that Belgium was before the beginning of the War an ally and dependency of England." Surely such a statement is an insult to American intelligence. But suppose we let this pass, according to his own confession he had determined to hack his way through before he knew this. And if Belgium was an ally of England that was no reason for attacking Belgium when Germany was not at war with England. And in that case why should he express surprise and indignation at Britain's entrance into the war. "All it (Germany) wants is equal opportunity, open door politics, and open commerce throughout

the world." Surely this would lead an intelligent American to ask why they had to plunge the world into strife and confusion for something that they already possessed. But the tone of the statement has animated Germany all through its diplomatic course with the United States. What has been the result? The following quotation from *The Outlook*, New York, represents the view of great numbers of Americans who have found the President's demand for neutrality of thought and feeling as well as action, in the world's greatest crisis, to be absurd.

Eighteen months ago, in the midst of peace, broke forth the horrible flame of war. The fundamental rights of man were denied by the armed spectre of militarism—the right of a small nation to live; the right to have national treaties respected; the right of peaceful people to sail undisturbed across the sea under the white flag of commerce; the right of men to work in their fields; the right of women to nurse their children in unfortified villages. What, under these circumstances, was our opportunity as the greatest, wealthiest, and most influential neutral nation on the globe? We had a duty to protect the rights of Americans on land on on sea, at home and abroad, and to provide ourselves with an army and a navy adequate to fulfil that duty. But this was not all. God flung open the door of a great opportunity to America—the opportunity to stand not merely for American rights, not merely for neutral rights, but for the right of men and women to pursue their peaceful vocations without fear of attack from swimming monsters in the deep or flying monsters in the air. The peace-loving nations of the globe, the peace-loving peoples in the lands at war, have looked to America for leadership. If we have failed in that leadership, it is not for want of opportunity nor for want of equipment, but for want of courage.

But this does not represent the position of the President or of the mass of the people. Many of the people have given generously to Belgian Relief and other funds, others have rendered noble and skilful service to the sufferers. But so far as we can see the Administration has achieved nothing for international law or our common humanity. Protests have been made against endangering American lives and many "diplomatic triumphs" have been recorded, but after each triumph something has happened to show that the rejoicing was premature. Mr. Bonar Law, speaking after the war has been raging over eighteen months, is more copious in his utterances.

In a long interview given to a newspaper correspondent, he tells that for some time past intelligent people had been working to prevent war or at least to mitigate its horrors.

"Every convention of this sort has been violated by our adversaries in this war, but, unfortunately, up to this point, no effective protest has been made by any neutral country.

"The United States was, and is the greatest of the neutral countries. A proud nation, and we are glad to feel the closeness of our blood-and-sympathy relationship with her.

"Her citizens were barbarously murdered by our adversary. It is not for me, it is not for the British Government, it is not for anyone except the United States to say what action she should have taken or still shall take in the grim circumstances.

"But the world's hope lies in destroying from the minds of men the thought that such outrages can prevail against civilization and making speeches, granting interviews and writing letters of appeal to the world's social sense will not thus destroy this thought.

This seems to be correct, "no effective protest has been made by any neutral nation" against the violation of Belgium, the killing of babies, the slaughtering of innocent travellers. But the fact seems to be that whether, as Colonel Harvey says, the ear that President Wilson has to the ground is "frost-bitten" or not, it discovers that the masses of the people regard it as the supreme virtue of their highest official that he has kept them out of war. Strong talk about "preparedness" and strong notes about "strict accountability" are all right but the temper of the people is at present pacific. Some of them can even accept the position that Britain should not interfere with trade but that Germany may demand that American passengers should stay at home. Of course the most scathing denunciations of this course comes from representative Americans who are we believe in the minority. Neutrality has its own reward with which it must be content and as to the character of that reward it not for us to anticipate the verdict of history.

In the meantime the German attempt to "Strafe" England is as wild in action as in words. In the recent raid it is believed that three Zeppelins were in action. They ranged over eight counties from Yorkshire to Kent. About forty bombs were dropped. The first report included "Killed, three men, four women, five children; injured thirty-three." "They threw

out starlights of all colours, which made a glorious display, and the fireworks effect was heightened by the explosion of dropping bombs and the boom of the guns." Where there was a searchlight and a gun they ran or rather flew away. Now, for some of the glorious results. "Two terraces of houses practically destroyed, one office, one public house, a cafe, several shops partly destroyed and a block of alms houses badly damaged." One man was killed in a restaurant and in one house three sisters are dead. A man of 90 was burned to death when his room was struck by an incendiary bomb. In one humble home a mother who was nursing her child was killed side by side with the child. One invalid lady died suddenly on hearing the explosion. In one house the mother and four children were killed and the father seriously hurt. This is the glory of modern war by "flying monsters in the air," the latest product of German Kultur. In Germany the official report would read, "Our brave air-men attacked English fortresses and returned safely to their base." This kind of thing shows what a dominant Germany would mean and nerves brave men for the sacrifice in the battle against unscrupulous militarism.

W. G. JORDAN.

